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DOMESTIC ENGINEERING

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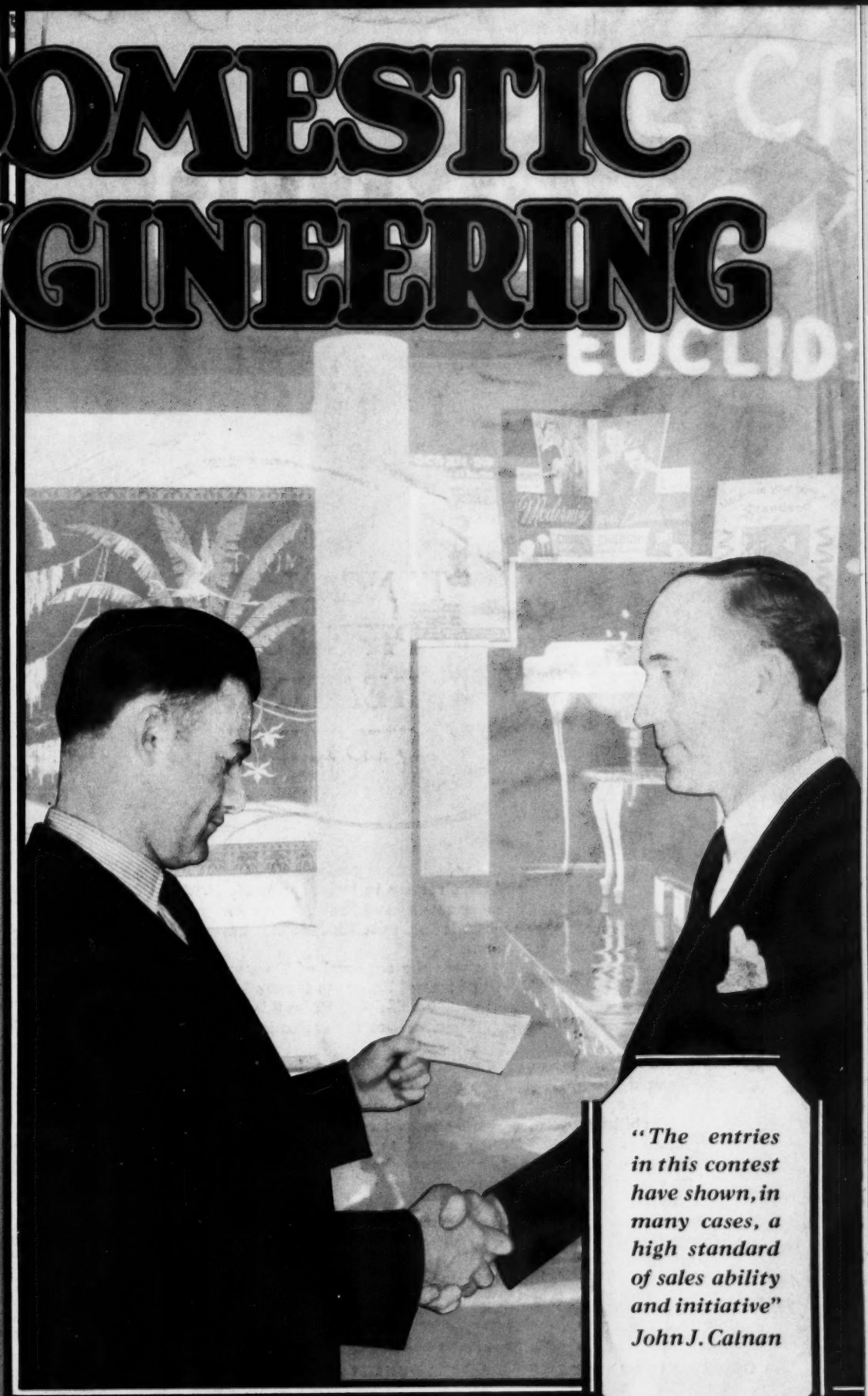


"The entries in this contest have shown, in many cases, a high standard of sales ability and initiative"
John J. Calnan

FEBRUARY
1935

Plumbing & Heating Contracting and Merchandising

SPECIFICATIONS FOR MODERN SCHOOL READ:

"TONCAN IRON PIPE FOR HEATING SYSTEM"

Toncan Iron Pipe is shattering many time-honored ideas of what good pipe service in buildings really is. And the news is getting around that here is a pipe that really merits the changing of old specifications that have been standbys for years.

A case in point was the approval of Toncan Iron Pipe by the Board of School Directors for the heating system of the million-and-a-half-dollar Rufus King High School, Milwaukee, Wisc., where six carloads of this better pipe were installed.

Toncan Iron Pipe will stand the most exhaustive investigation. It is made of a rust-resisting alloy of refined open hearth iron, copper and molybdenum. Judge its ability to last in pipe by these facts—sheets of this material that have been exposed to the elements for more than 20 years have not yet required replacement—pipe carrying acid mine water, and acid sludge in refineries lasts many times longer than ordinary ferrous pipe. So you can safely use Toncan Iron Pipe for the most severe work in buildings—even if you have to discard old specifications.

Write for a copy of "Pipe for Permanence."

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

Our Direct Mail Brings You New Customers—

Our Products Keep Them For You

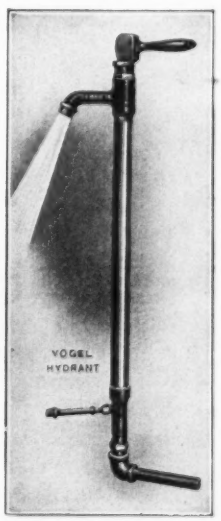
Vogel No. 1—Many thousands in use in all parts of the country. Cannot freeze, no matter how cold the weather.

PLUMBERS who use Vogel folders and blotters are constantly adding new customers to their lists; and the service and satisfaction obtained from VOGEL PRODUCTS makes these new people regular customers.

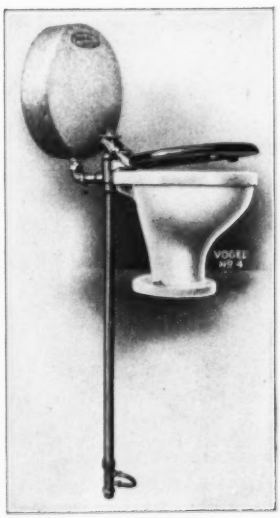
Why not increase your profits and build up your list of satisfied customers? Write for a supply of folders and blotters, imprinted with your name and address. Tell us how many you need. They'll be sent promptly.

JOSEPH A. VOGEL COMPANY, Wilmington, Del.; St. Louis, Mo.

VOGEL
PATENTED
Frost-Proof **Products**



Vogel Frost-Proof Hydrant. For garages, yards, playgrounds, etc. Nothing to stop up. Will never freeze.



Vogel No. 4—Frost-Proof. China bowl, top supply. Same valve as the Vogel No. 1. As good looking as a bathroom closet.

Established 1889

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	Page
It Happened This Month!	38
FHA Prize Contest Brings Out Remarkable Sales Ability Shown by Contractor-Dealers	40
Leaders Comment on FHA Promotional Effort	42
FHA Program Brings Sales and Wins $100.00	44
Water Supply Campaign	51
Cross Connections	52
Air Conditioning Will Reach Public Through Heating Trade. By Rolland J. Hamilton	55
The Activities of N. A. M. P. By John J. Calnan, President	121
Illinois Master Plumbers' Convention	131

AUTOMATIC HEAT AND AIR CONDITIONING SECTION

Oil Sales Curves Respond to Sales Efforts. By Marketing Staff	63
Quick Service and Sound Engineering Sell Oil Burner Jobs	64
Abstract of Papers at A. S. H. V. E. Winter Meeting	67
Air Conditioning Is Given the Spotlight	68
CO_2—What It Is and How to Test for It	70
Trouble and Explanation	73
Motors—Electrical Facts for A. H. and A. C. Dealers. By O. W. Thomas	75
How to Size and Design Ductwork. By H. L. Alt	78
Research Shows Operation of Unit Room Coolers. By A. P. Kratz, M. K. Fahnestock and S. Konzo	81
Automatic Heat and Air Conditioning Questions	84
A. H. and A. C. Reference Data	89
Products for Dealers	98

SPECIAL DEPARTMENTS

Editor's Page	34
Our Industry	37
Questions and Answers	57
Supply News	113
New Products for Store, Shop and Job	117
The Trade	120
Women's Page	139
Convention Dates	142
Bar Service	143
Trade Literature	145
Plumbing and Heating Patents	147
Index to Advertisers	158

A Message to the Master Plumbers of America

PLAIN FACTS

WHY put nondescript brass goods on a quality fixture? You don't even save money trying it. You do invite sales resistance with the lesser known brands, incur possible mechanical difficulties in assembling, make probable repeat calls to pacify the customer.

"Standard" Quality Brass Goods Have the Call

Your customers will quickly accept your advice to use "Standard" Brass Fittings on "Standard" Plumbing Fixtures. You can recommend them with confidence, knowing they are of the same dependable quality, harmonious in design, and beautifully finished in "Standard" Chromard.

Using "Standard" Brass Goods you eliminate sales resistance because your customer expects each fixture to be completely "Standard"—you eliminate worry over competition in quoting by offering the best product at comparatively *no higher price*—further, you discount future difficulties knowing that "Standard" Brass Goods are the ultimate in dependability.

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

GOULDS "CID" CELLAR DRAINER

NEW $35.00
another business builder for you

GOULDS "CID" SHALLOW WATER SYSTEMS

250 gal. size $49.85
NEW 350 gal. size $53.85

Quick turnover increases your PROFITS!

It's going to be a big pump year. Increased purchasing power, increased confidence, the Electrical Water System Council Campaign, FHA loans for digging and equipping wells, replacements, etc., are all going to help you sell more pumps this year.

That's why it's so important this year to have the right line-priced for quickest turnover. You will make more money *with less effort* selling Goulds Systems than you would any other make. Magazine advertising, a complete direct mail campaign, the reputation of the Goulds name, all work to direct business to the Goulds dealer. Are you going to get your share? Write for details.

THE GOULDS PLAN THAT BRINGS THE PROSPECTS TO YOU

Designed for use by Goulds Dealers in the Electrical Water Systems Council Campaign, these powerful business getters are equally effective for use with your own prospect list.

GOULDS PUMPS

THE BEST PUMPS AT THE LOWEST PRICES GOULDS EVER OFFERED·

Mechanically Goulds never offered better pumps than the genuine first quality 1935 models illustrated on these pages.

Prices were never lower—in fact—in many cases Goulds prices are lower than pumps of much lighter and inferior construction.

The line is the most complete ever offered by any pump manufacturer.

The Goulds Sales Policy, strictly adhered to, protects and favors the legitimate dealer and distributor.

In a few words here is the finest pump proposition ever offered any dealer. It will make money for hundred of dealers this year. Will you be one of the lucky ones?

WELL

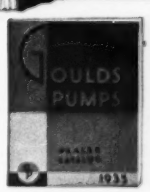
GOULDS "CID" DEEP WELL WATER SYSTEMS

WAS ~~$140.00~~
NOW $115.00
new low price

RUNNING WATER
YOUR FAMILY DESERVES IT

SEND FOR THIS NEW CATALOG

Just off the Press—new 128 page catalog describes in detail the most complete line of pumps and water systems built by any one manufacturer. This complete line, priced competitively, gives the Goulds Dealer today's greatest profit opportunity.



Goulds Pumps, Inc.
210 Fall Street, Seneca Falls, N. Y.

Please send me the New 1935 Goulds Catalog:

Name_____

Firm_____

Address_____

Inc., SENECA FALLS, N.Y.

RIGID AND SOLID IN APPEARANCE AND IN FACT
HEAVY, CAST WALLS DISTRIBUTE AND HOLD SOLDERING HEAT FOR A TIGHT, SURE JOB
ACCURATE IN ROUNDNESS AND ANGLES- AND IT STAYS THAT WAY
A SMOOTH UNBROKEN BONDING SURFACE ASSURES AGAINST LEAKS

GETTING DOWN TO DETAILS

EVEN the most careful workman can't overcome the handicap of fittings that aren't right in every particular. That's why so many plumbers are turning to "Fittings by Nibco"—because Nibco fittings, down to the last detail, are a dependable and sure means to customer satisfaction.

They're cast and machined, these Nibco fittings. They're heavy enough to distribute the heat of the soldering torch evenly, and hold it long enough to make sure of a bond. The cups are deep, and smooth all the way down—no chance for the solder to go only half way. These fittings are accurate; a right angle is a right angle, exactly, and the cups are perfectly round. What's more, even though you throw Nibco fittings into a bin or carry them in your pocket, they remain accurate and round. There's no fussing on the job where it's "Fittings by Nibco."

Copper is the right material for today's plumbing, and Nibco is the right fitting. Straight run and drainage (pitched 1/4" to the foot) solder fittings are available, as well as flared tube and combination connections. Ask your jobber, or ask us, for details.

Fittings by Nibco

GIVE YOU THIS COMPLETE SERVICE:

1. Flared Tube Fittings
2. Cast Solder Fittings
3. Waste and Vent Fittings
4. All Reducing Fittings
5. Pipe Threads to Copper Connections
6. Globe, Gate and Drain Valves

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 3. No. 4

BROWNIE ORDERED TO JAIL

BROWNIE SHOWER HEADS IN FOR "LONG STRETCH" AT PITTSBURGH

Allegheny County (Pa.) Expects 50% Saving of Water

WARDEN McNEIL ELATED

Brownie Shower Heads, a product of The Chicago Faucet Co., have been installed on the 28 prisoners' shower baths at the Allegheny county jail, Pittsburgh, Pa., where they are in regular use. The installation is giving splendid satisfaction and Warden John McNeil expects a substantial saving of water to result. Under the caption "Warden Proud of Device to Save Water," the following story regarding these Brownie Shower Heads appeared in *The Pittsburgh Press* of Sunday, December 16, 1934. The words in parenthesis have been inserted to clarify meaning.

"The water, both hot and cold, required to wash thousands of Allegheny County jail prisoners, pondered Warden John McNeil, must cost a plenty.

"So now, when the more than 500 prisoners don robes and slippers for their weekly scrub deep down within the walls of the jail, they find a new gadget.

"It's about two inches long, something like the carbonic gas cartridge that fits in a seltzer bottle, and when the water is turned on it spurts a fine needle like spurt that wafts water about the bather like dew on flowers.

" 'This', mused Warden John McNeil, who has a reputation for being a very economical man, 'ought to save from two to four gallons of water (per bath)—yes, more than that in some cases. Some of our customers are dirty indeed.'

" 'Formerly, we had one of those big faucets (shower heads) on each of our 28 showers. Why they must have been four inches across the face, and no matter how big the prisoner was at least half the water sprinkled free and down the drain, doing neither Allegheny County nor the prisoner any good.'

"Prisoners at the jail are required to take at least one bath a week. New prisoners are bathed on entry whether they had a bath previously or not.

"Water costs must be paid out of the jail budget. In 1934 the bill was $7,176.54.

" 'Yes,' continued the warden, turning water through the new gadget (Brownie Shower Head) pridefully, 'this will save the county about one-half on water in the jail.'

" 'And as for the prisoners, many of them are not used to baths. Of course some of the customers are as clean as anybody, but lots of times with those big faucets (shower heads), some of the new boys thought they might be drowned.' "

This is the Brownie Shower Head to which the foregoing story from *The Pittsburgh Press* refers.

Till the Sands of the Desert Grew Cold — or How a Brass Goods Salesman Had a "Lovely" Time.

It has often been asserted that the life of a salesman is just one darn thing after another. Probably there's something to it. At any rate, a recent report from Paul S. Robinson, Pacific Coast Representative of The Chicago Faucet Co., concludes with this brief account of an "incident" which may lend further credence to the old wheeze.

"On my way back from El Paso to Phoenix," wrote Paul, "I got lost in a desert sand storm and took the wrong road, leading to nowhere. I ran out of gasoline 45 miles from any service station, and had to sit all night in my car listening to the howling of coyotes. It cost me eight 'bucks' finally to get towed back to 'civilization.' "

A New Wall Fountain
THE WINNEBAGO
(No. 660)

This new drinking fountain, here announced for the first time, combines features which will insure its instant indorsement, both by the trade and by the user. It has push button control —self-closing type—situated on the supply pipe (see illustration above) in the most natural location for convenient operation. It has the famous Chicago Faucet Angle Stream Nozzle, approved by health and sanitation authorities, mounted on an offset supply arm which is adjustable to any desired position in the bowl. The bowl and trap are vitreous enameled cast iron, the bowl being 10 inches in diameter and 3 inches deep; all other parts being brass, chromium plated. The entire fixture is generous in proportion yet compact enough not to be obtrusive—12½ inches from wall to front of bowl. Order one now for display.

People who use Chicago Faucets seldom change to any other kind. Chicago Faucet dependability makes lasting friends.

Noted Hospital Finds Faucet Troubles "Over"

ST. MARY'S HOSPITAL, RACINE, WIS.

Late in 1932, one thousand Chicago Faucets were installed in the new St. Mary's Hospital at Racine, Wis. Recently Joseph J. Blommel, chief engineer at the hospital, said:

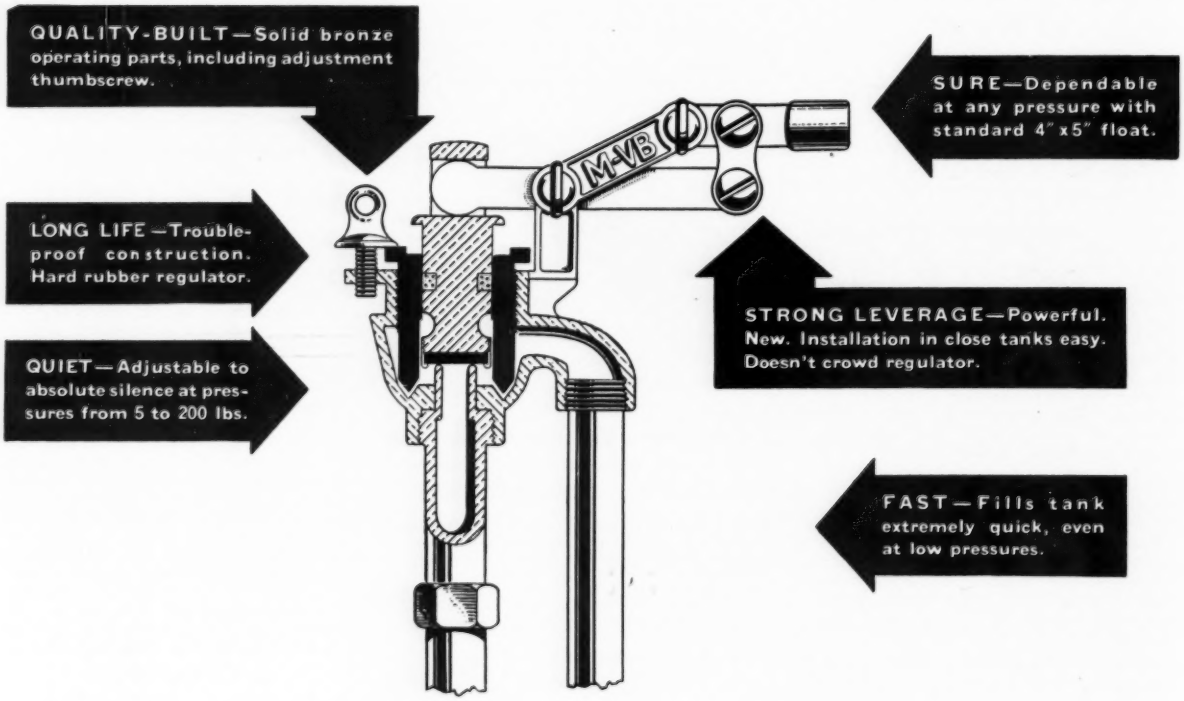
"In the more than 18 months we have had Chicago Faucets in operation here, we have found them entirely satisfactory. They have been remarkably free from trouble. . . . As far as faucets are concerned, my troubles are over."

EVERY PART'S A SALES-POINT IN M-VB'S NEW No. 18

SELL a ballcock on the features of its construction? Certainly, if it is the great new M-VB No. 18. Chances are, every prospect in your territory holds a grudge against some feature of his closet tank. Too noisy—too slow—apt to stick or leak—you know the troubles. No. 18 has solved every common problem. List its features for your customers, and watch the orders mount.

No. 18 is typical M-VB construction all through. Design, materials, workmanship are *quality*. It's the kind of fitting that makes your reputation, and keeps your customers happy.

Ask your jobber for details and prices—it costs no more than others! Or write us for the complete M-VB catalog.


QUALITY-BUILT—Solid bronze operating parts, including adjustment thumbscrew.
SURE—Dependable at any pressure with standard 4" x 5" float.
LONG LIFE—Trouble-proof construction. Hard rubber regulator.
STRONG LEVERAGE—Powerful. New. Installation in close tanks easy. Doesn't crowd regulator.
QUIET—Adjustable to absolute silence at pressures from 5 to 200 lbs.
FAST—Fills tank extremely quick, even at low pressures.
M-VB

M V B

SCOVILL

NRA

MORENCY-VAN BUREN DIVISION . SCOVILL MANUFACTURING COMPANY . STURGIS, MICHIGAN

A COMPLETE LINE OF CLOSET TANK FITTINGS

LET'S LOOK INSIDE

● Look through a section of STREAMLINE Copper Pipe and Fittings—here are no rough projections, inside shoulders, or abrupt pipe ends. The inside is almost as uniformly smooth as a gun barrel. The pipe is recessed into the fitting in such a way that the wall of the fitting is continuous. (See Illustration.)

The inside shoulder of the fitting, against which the pipe rests, is approximately the same height as the thickness of the pipe wall, thus forming a flow area in a STREAMLINE installation which is uniform and unrestricted through pipe and fitting. There are no anchorage points to encourage accumulation of foreign matter to lessen the flow and eventually clog the pipe.

A STREAMLINE installation cannot rust or clog. Vibration cannot make it leak.

Send for our catalog F and Solder Instruction Card. Yours for the asking.

TRADE MARK

STREAMLINE

REG. U.S. PAT. OFFICE

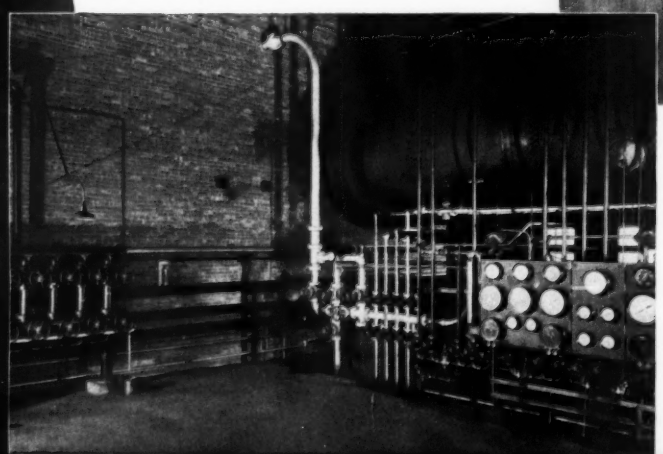
FITTINGS AND COPPER PIPE

STREAMLINE PIPE AND FITTINGS
PORT HURON, CO. MICHIGAN
DIVISION OF MUELLER BRASS CO.

J&L PIPE

A VERSATILE SERVANT WITH "good references"

Users of Jones & Laughlin Steel Pipe will testify to its noteworthy performance. It is now in use in hundreds of installations in cities throughout the entire country. It serves in buildings of all types, both large and small, and for industrial piping of all kinds. The satisfactory service **J&L** Pipe is giving to others is the best evidence we can offer of its ability to meet your requirements. Write us and we will supply a list of installations for you to inspect. You will find the 88-page **J&L** Pipe Handbook useful. A copy will be sent without obligation.



J&L CONSTRUCTION PRODUCTS

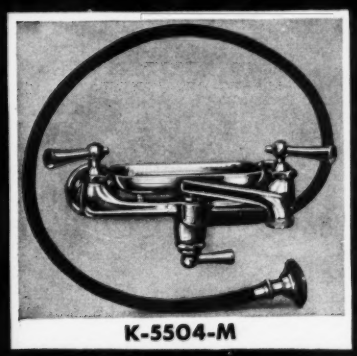
Light Weight Rolled Channels
Junior Beams—Steel Pipe
Bars for Concrete Reinforcement
Standard Structural Shapes
Steel Piling—Nails—Tie Wire
Fabricated Structural Work
including Steel Plate Construction

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

GET PART OF THIS BUSINESS

K-3395
(Patented Jan. 2, 1923
—Nov. 3, 1931)

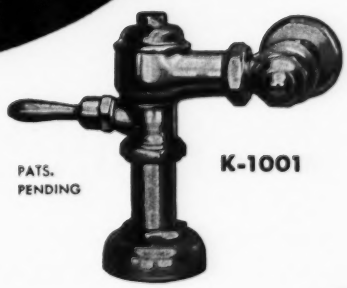


K-5504-M

Millions of dollars will be spent to modernize hotels, apartments and residences.

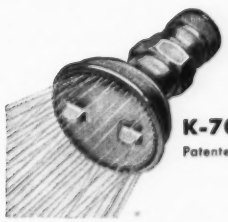
We are illustrating here some of the items popular for modernizing. Literature is available on various types of showers, shower heads, sink fixtures; also the Si-Flo Flush Valve. You will need these folders when you go after modernizing jobs—use them to send out with your mail. They will help you get business. Tell us how many you can use—imprinted with your name and address.

SPEAKMAN COMPANY
Wilmington, Del.

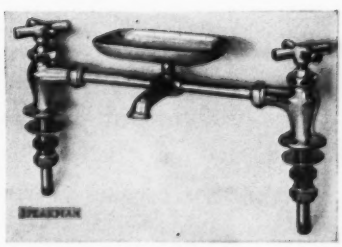


PATS. PENDING

K-1001



K-7047
Patented—Nov. 3, 1931
Mar. 15, 1932
June 14, 1932



K-7115

K-2916

K-3395 Speakman Anystream Self-Cleaning Shower Head. Will never stop up and gives a needle, normal or flood shower at ordinary house water pressures. Fits any kind of a shower.

K-7047 Adjusta Spray Head. Little brother to the Anystream Head. Gives coarse or fine shower spray by adjusting the face—easily cleaned by giving the face a couple of turns.

K-2916 Trans-Nozzle Shower. One of many types of this style shower made by us. These Trans-Nozzle showers fit over practically any type of tub and give shower convenience at small cost without tearing up the bathroom.

K-1001 Si-Flo Flush Valve. This valve is practically noiseless. Use it to replace any type of noisy flush valve. Roughs-in on Standard measurements. Has only one wearing part which is easily replaced at nominal cost.

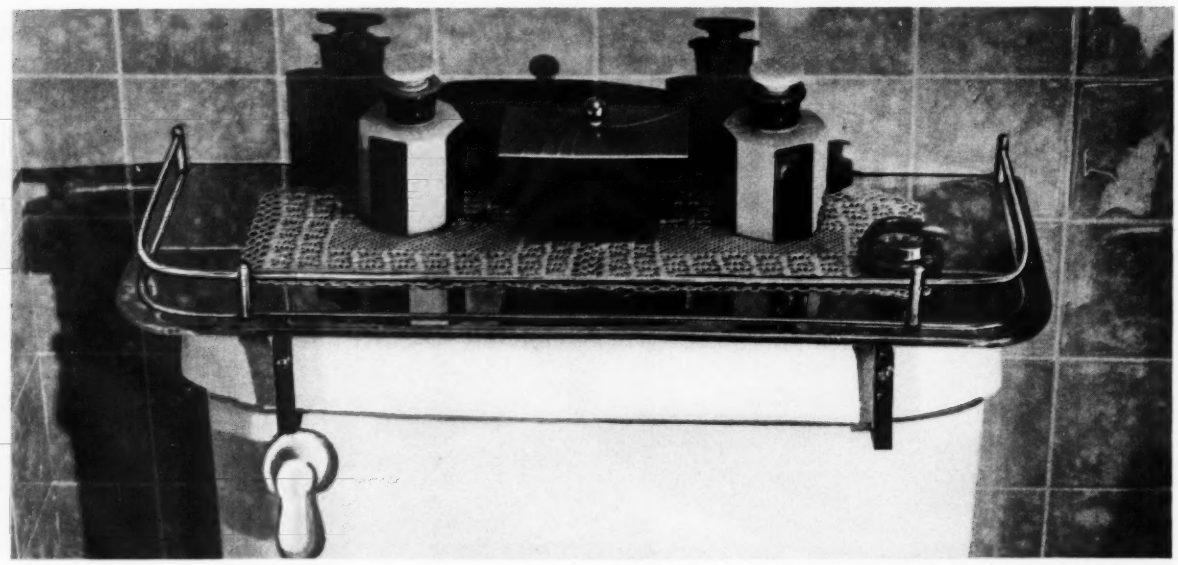
K-5504-M Sink Fixture with hose and spray. A real kitchen convenience. We make these swinging nozzle sink fixtures in various styles with and without hose and spray.

K-7115 Over-Slab Lavatory Fixture. Fits practically any type of lavatory. Gives the convenience of washing in running tempered water from one nozzle. Also furnished with hose and spray (K-7116).

SPEAKMAN *Showers & Fixtures*

SCOVILL SAFETY-SHELF

A double-use item . . . a shelf and adjustable replacement tank cover



A SHELF-FULL OF BUSINESS FOR YOU!

SOMETHING NEW—and needed—for every bathroom in your territory. It's handsome. Practical. *Sells itself* on first sight. And it gets you into prospects' bathrooms for a chance to talk up other improvements and modernization work.

The Scovill Safety-Shelf makes the top of the closet tank a *safe* and handy place for toiletries. It's flat—with a guard-rim all around. Beautifies the tank. Can be used over the present top, or as a replacement top-and-shelf combined.

Go after sales while the Safety-Shelf is new. Get people talking about it. Rig up a display in your window. Let us send you a supply of leaflets for distribution to your prospect-list. Ask your jobber for details or write direct to the address below.

The Safety-Shelf is rust-proof, solid, adjustable to any closet-tank. Made of heavily chromium-plated brass. Easily installed—without tools—in a couple of minutes. Includes adjustment for leveling over any type of tank-top. *Complete installation instructions in every package.*

SCOVILL

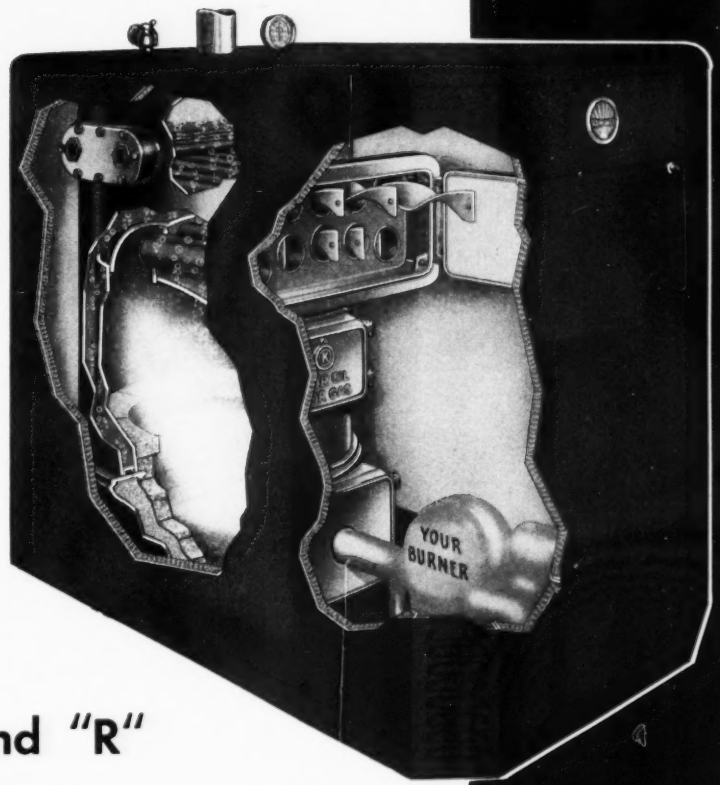
NRA MEMBER U.S. WE DO OUR PART

SCOVILL MANUFACTURING COMPANY • *PLUMBERS' BRASS GOODS DIVISION* • WATERVILLE, CONN.

Scovill Flush Valves • Shower, Bath and Lavatory Fittings • Miscellaneous Plumbers' Brass Goods

COMPLETELY ENCLOSED in One Jacket

THE KEWANEE ROUND "R" BOILER AND ANY BURNER



• NOW . . . The Kewanee Round Boiler completely enclosed in a jacket which also houses any type burner. The Regal Jacket when gun type burners are to be used; The Square Jacket to accommodate rotary burners . . . providing a completely encased heating plant of outstanding attractiveness.

But with all this well groomed appearance let's not forget that for performance "It's what's *under* the jacket that counts," hence the importance of the many features which make the Kewanee Round "R" so economical for heating homes and smaller buildings.

Note these features of the KEWANEE Round "R"

STEEL PLATE CONSTRUCTION insures greater strength, dependability and longer life with a minimum of repairs.

TWO-PASS TUBES give the hot gases longer travel so more of the available heat is absorbed by the water in the boiler.

SPINNER BLADES hold these hot gases longer.

HOT WATER COIL of greater guaranteed capacity provides the domestic supply of hot water without purchasing a separate water heater.

DRAFT ADJUSTER accurately and automatically controls the draft and prevents the burner from running wild.

REFRACTORY LININGS inside the doors prevent heat from radiating outside.

ALL CASTINGS extra substantial for long life.

ACCESSIBLE: Blow off and wash out plugs make every part accessible and easy to clean.

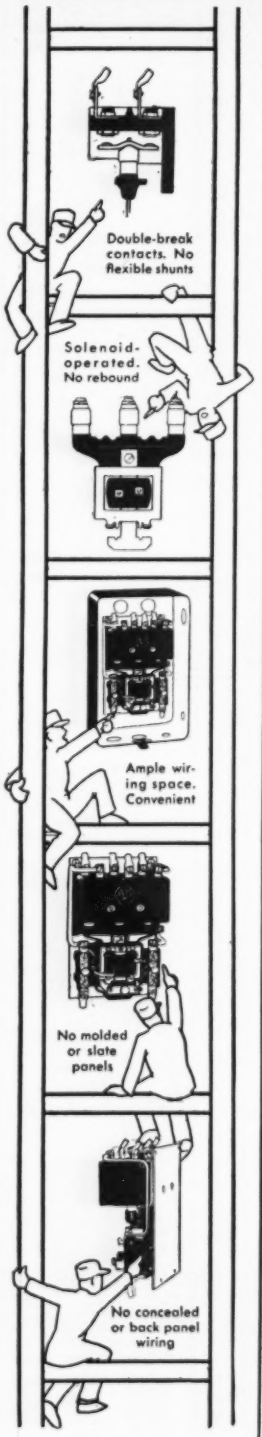
KEWANEE BOILER CORPORATION KEWANEE, ILLINOIS

Eastern District Office: 37 West 39th Street, New York City

Regal Jacket

KEWANEE

Greater Switching Capacity
Smaller Size—Unequaled Simplicity


Double-break contacts. No flexible shunts
Solenoid-operated. No rebound
Ample wiring space. Convenient
No molded or slate panels
No concealed or back panel wiring

That's why

Allen-Bradley Starters
are so superior for Oil Burners, Stokers, Air Conditioners, Refrigerators, etc.

The popularity of the Allen-Bradley line of starters for motors on oil burners, stokers, refrigeration units, etc., is due to the ultra-modern switch design. There are no flexible shunts, no pivoted bearings, no bulky arc barriers, no heavy slate panels, no concealed wiring. The solenoid type of switch is so extremely compact that there is generous space for wiring within the cabinet. The silver alloy contacts form no insulating oxides and, therefore, need no maintenance, after long use.

Allen-Bradley Bulletin 709 Automatic Starters will handle motors up to 30 H. P., 220 volts and 50 H. P., 440-550 volts. In addition to standard across-the-line starters, there are A. C. and D. C. contactors, single phase motor starters, combination starters with built-in disconnect switches, and a line of manual starters.

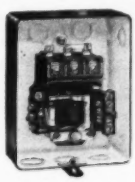
As for cabinets—general purpose, water-tight, explosion-proof, dust-tight, etc.—there is an Allen-Bradley enclosure for every need.

Send for bulletins and price sheets today.

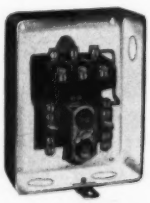
ALLEN-BRADLEY CO.
1317 S. First St., Milwaukee, Wis.

Bulletin 709 Across-the-Line Starter is the most popular A.C. motor starter for motors up to 15 H.P., 110 V., 30 H.P., 220 V., 50 H.P., 440-550 V.

Bulletin 712 Combination Starters for A.C. Motors combine a hand-operated disconnect switch with automatic starter.

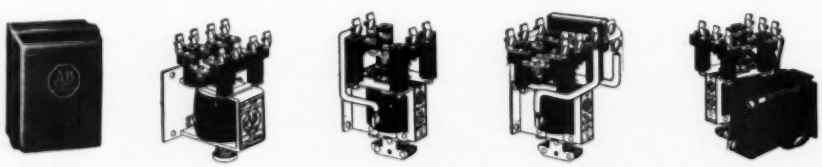


Bulletin 709SP A.C. Single Phase Motor Starters are rated up to 1½ H.P., 110 V., 3 H.P., 220 V., and can be used interchangeably on either voltage. Give overload protection.

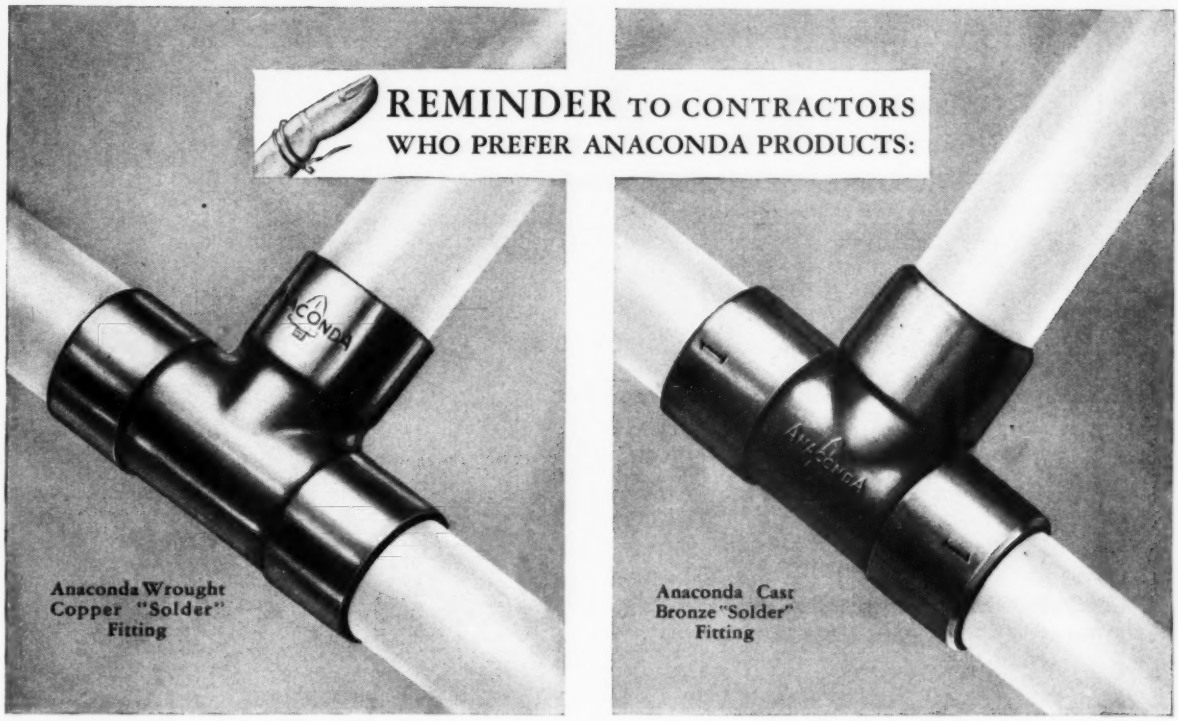


Bulletin 609 A.C. Manual Starters are rated up to 3 H.P., 110 V., 5 H.P., 220 V., and 7½ H.P., 440-550 V. Overload protection (not no-voltage release) is a standard feature.

A. C. & D. C. CONTACTORS FOR EVERY APPLICATION



Solenoid Contactors and Relays are available in combinations from one to eight poles (see illustrations above) for every type of service. Furnished with or without steel cabinets.


REMINDER TO CONTRACTORS
WHO PREFER ANACONDA PRODUCTS:
Anaconda Wrought Copper "Solder" Fitting
Anaconda Cast Bronze "Solder" Fitting

Our line of Solder Fittings

for use with Copper Tubes is

Complete

ANACONDA
from mine to consumer

THE well-known Anaconda trade-mark now appears on a full line of Anaconda products for practically every copper tube and fitting requirement. Fittings include elbows, tees, unions, couplings and adapters in all sizes and combinations.

Anaconda Cast Bronze Solder Fittings withstand rigid tests for strength and resistance to pressure and vibration. (Anaconda Cast Bronze Fittings are also available in the "flared tube" type—recommended particularly for underground use with "soft" tubes.)

Anaconda Wrought Copper Solder Fittings provide copper to copper connections, possess high tensile strength and are free from porosity. (Tees are *seamless.*)

Anaconda Deoxidized Copper Tubes are furnished both hard and soft. With this combination of tubes and the three types of fittings, Anaconda Products can be used for the entire assembly of practically every copper tube and fitting installation. Both tubes and fittings are made to the accurate, standardized dimensions so essential for sound, leak-proof joints.

Deoxidized Copper Tubes
Types "K" and "L"—⅛" to 8" incl.

Wrought Copper Solder Fittings
⅛" to 2" *incl.*

Cast Bronze Solder Fittings
¼" to 6" *incl.*

Cast Bronze Solder Valves
Gate Valves
⅜" to 2" *incl.*

Globe and Stop & Drain Valves
⅜" to 1" *incl.*

Cast Bronze Flared Tube Fittings
¼" to 2" *incl.*

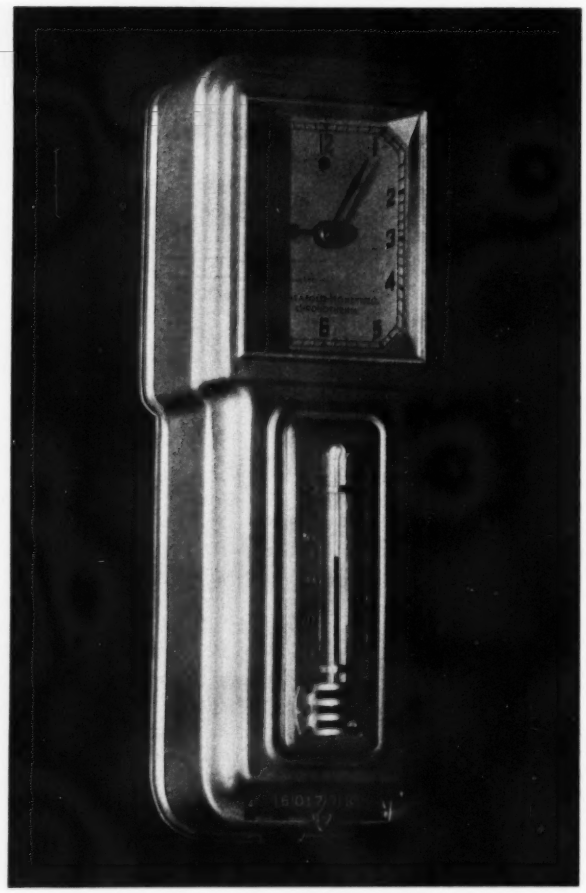
* * *

As in the past, Anaconda 85 Red-Brass Pipe in standard sizes for threaded assembly is recommended as the most durable pipe obtainable at moderate cost. The choice of Brass pipe or of Copper tubes depends on the installation desired.

THE AMERICAN BRASS CO.
General Offices: Waterbury, Connecticut

ANACONDA COPPER & BRASS

THEY WON'T KNOW . . . . UNTIL YOU Show Them



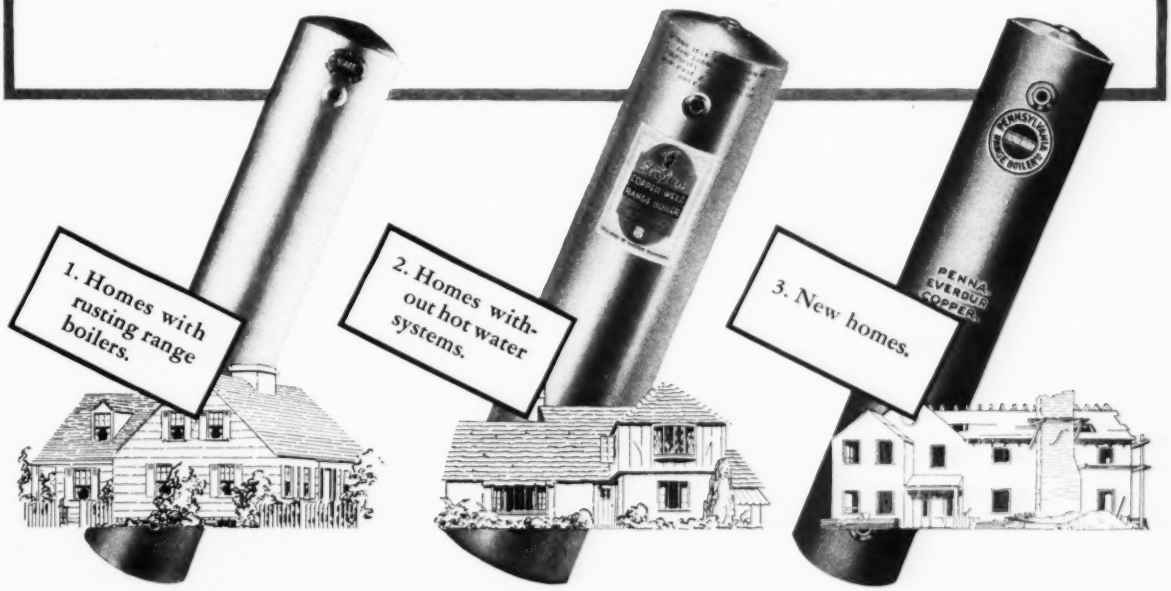
YOUR customers will never know the advantages of modern automatic controls until you show them. They won't realize that the improvements in the last few years will greatly increase their comfort and eliminate all attention, and at the same time effect economies that will pay for these modern controls, often in a short time. Capitalize on these modern controls. Replace worn and out of date equipment with modern controls which will give greater satisfaction with automatic heat. Show your customers the advantages of limit controls, summer-winter controls, the low water cutoff and the Chronotherm. Standardize on Minneapolis-Honeywell's complete line of controls for modernization to insure satisfaction and undivided responsibility. These controls can be paid for under the terms of the Better Housing Program. Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minnesota . . .

▪ Quality Controls Cost Less Than Service ▪

MINNEAPOLIS-HONEYWELL

Control Systems

Not one...but 3 groups of prospects for EVERDUR Storage Tanks



ALL of these live prospects would naturally like to enjoy the convenience of the plentiful supply of rust-free hot water which an Everdur tank assures.

To some of these live prospects now ... and to others, week after week ... you can sell storage tanks (range boilers) of rustless Everdur. Everdur is copper . . . scientifically alloyed to provide the strength and welding properties of steel! And it cannot rust! Home-owners appreciate this fact, for all of them want hot water that is rust-free . . . not only when the tank is new, but indefinitely.

Why don't you plan a special drive for Everdur range boiler business this year? Every installation that you sell increases your profits . . . and helps your reputation with the better and more desirable type of customers.

Remember that leading makers of automatic water heaters and range boilers, including those illustrated, standardize on Everdur for all their rust-proof models. Additional data about Everdur . . . an exclusive Anaconda metal . . . will be mailed on request.

EVERDUR METAL
"Everdur" is a registered trade-mark identifying products of The American Brass Company made from alloys of copper, silicon and other elements.

ANACONDA
from mine to consumer

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities
In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

BETTER HOUSING PROGRAM

EVERDUR METAL *for* TANKS

FOR SALES AND PROFIT!

BETTER HOUSING PROGRAM

MODERNIZE

THE HOMES IN YOUR COMMUNITY WITH

THRUSH EQUIPMENT

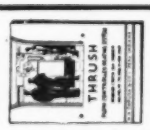
THRUSH

YOU can keep your men busy and build yourself a really profitable business by selling Thrush Flow Control System for automatic Summer-Winter service on automatic hot water heating plants in your community. Go over the list of all the installations made by you or your competitors in the past year and you can pick out *plenty of live prospects.*

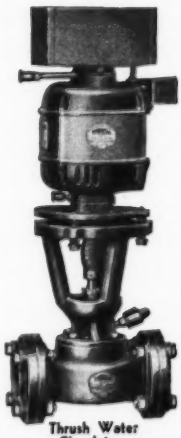
Thrush Flow Control, which can be installed on old or new jobs with little labor, makes any hot water heating plant so much more efficient with such slight additional investment that *sales are easy.* Tie up with the Better Housing Program. The government will lend the money if you can interest your customers in modernization work. What finer opportunity for increasing your sales could you possibly imagine? *Mail the coupon now for our descriptive literature.*

H. A. THRUSH & COMPANY
PERU, INDIANA

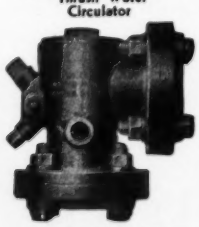
MAIL THIS COUPON NOW!



H. A. THRUSH & CO.,
Box 459, Peru, Ind.
Please send booklet describing Thrush Flow Control Heating System and its advantages for use with automatic firing devices.
Name.....
Address.....
City..... State.....



Thrush Water Circulator



Thrush Flow Control Valve (Patented)

THRUSH

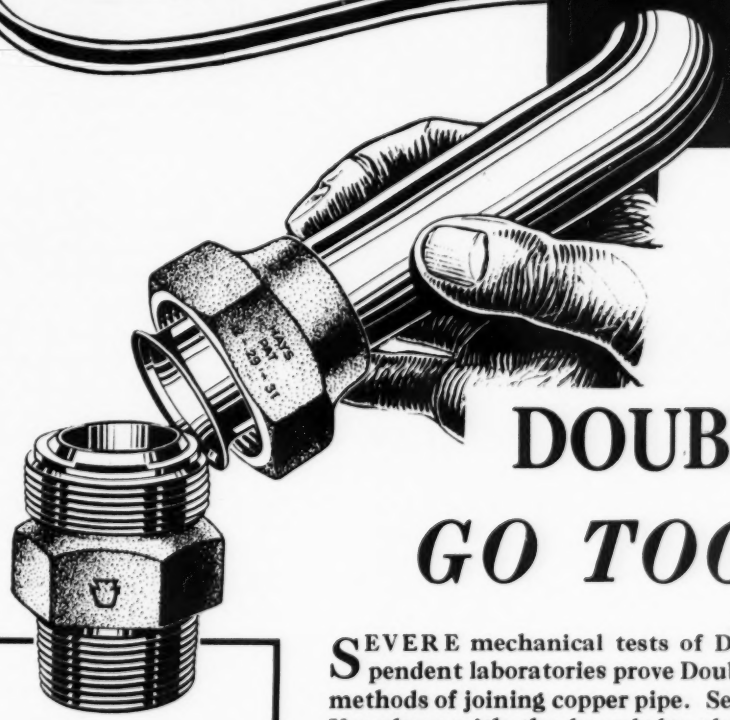
FLOW CONTROL FOR HOT WATER HEAT

HEATING

PIPING AND

AIR CONDITIONING

Wherever Copper Pipe Goes..



HAYS

DOUBLE SEALS

GO TOO . . . .

The Extra Little Flare Makes the Big Difference

See how the double faced flare of the pipe fits perfectly against the machined double seat of the Hays Double Seal Fitting. It's copper to copper with no intermediate sealing agent to ever worry about. This Hays Joint in all sizes has been subjected to severe test stresses to prove its stamina. Write for test data.

It's approved by Underwriter's Laboratories.

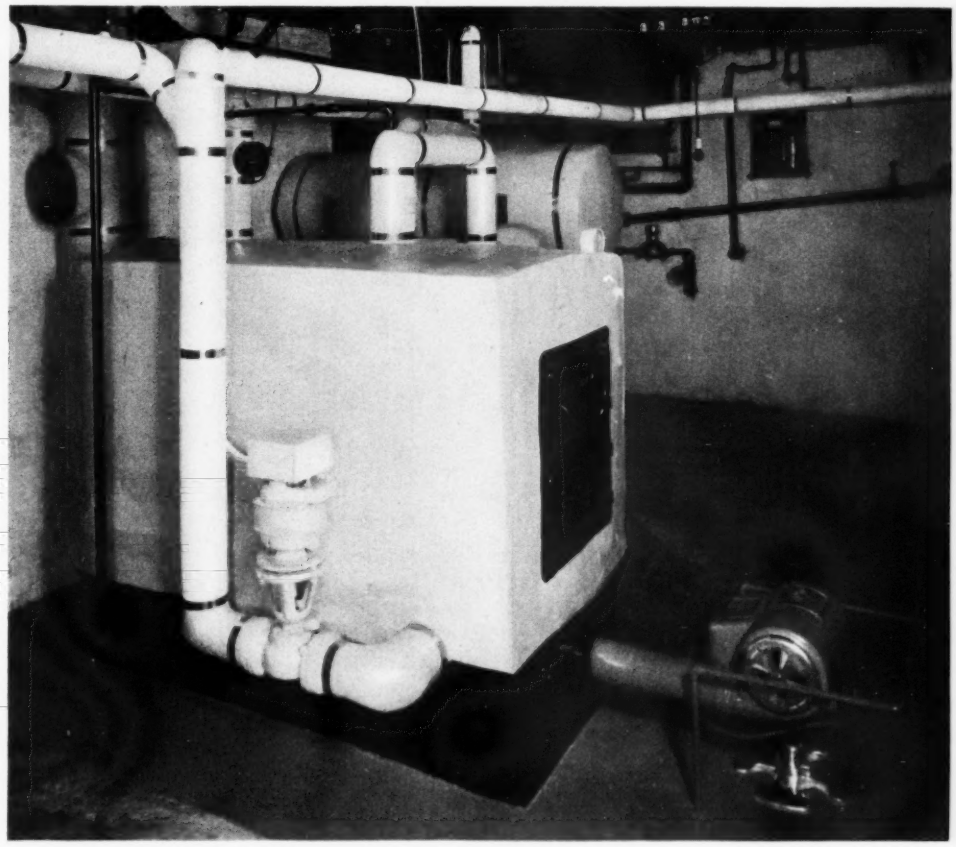
SEVERE mechanical tests of Double Seal Connections by independent laboratories prove Double Seals to be one of the strongest methods of joining copper pipe. Select Double Seals on performance. Use them with the knowledge that they can withstand strains far greater than ever necessary. Double Seals give plus protection to any piping installation.

Hays Double Seal Fittings in more than 400 styles and sizes are available from your local jobber for Plumbing and Service Lines. Use Double Seals for general repair—they tie in with standard iron pipe sizes. Wherever copper pipe goes—Double Seals go too.

Write today for 24 page catalog describing Hays Double Seals. Buy Double Seals thru your jobber.

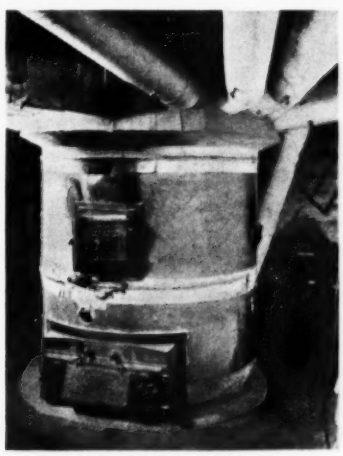
HAYS MANUFACTURING COMPANY, ERIE, PA.

Doubly Sealed . . Doubly Tight



What a clean cut, neat job this one is in every particular. Not only has looks, but performs faultlessly.

Just take a look at this



The least said about this one the better. Doubtless it was thought to be a good job in its day, but those days are past and gone forever.

BEFORE AND AFTER

J. F. Skramusky removed the warm air heater in Albert M. Breneman's home at Lancaster, Pa., and replaced it by a model Burnham-Thrush water job.

What a difference in looks alone. What a difference in fuel saved and comfort gained.

The boiler is a Burnham square sectional No. 0-2112-W.

Radiation of approximately 1600 feet is Burnham.

Thrush Equipment—No. 22 Circulator; No. 125 Control Valve; No. 4 Relief Valve; No. 12 Reducing Valve; Combination Gauge and Thermometer.

Taco Heater No. 3A. *Oil Burner*, Braden.

Everything but the Oil Burner supplied by Burnham. It's what we call a model job. Glad to give you any particulars. Your inquiry will be answered promptly. You will find us rather pleasant people to know and do business with.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

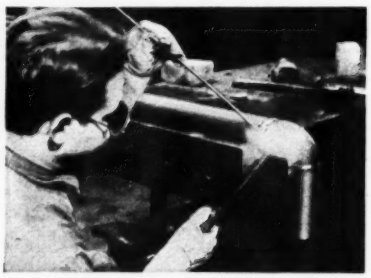
"WE ORDER EVERYTHING FOR OXWELDING AND CUTTING FROM LINDE"

PIPING MODERNIZED PROFITABLY

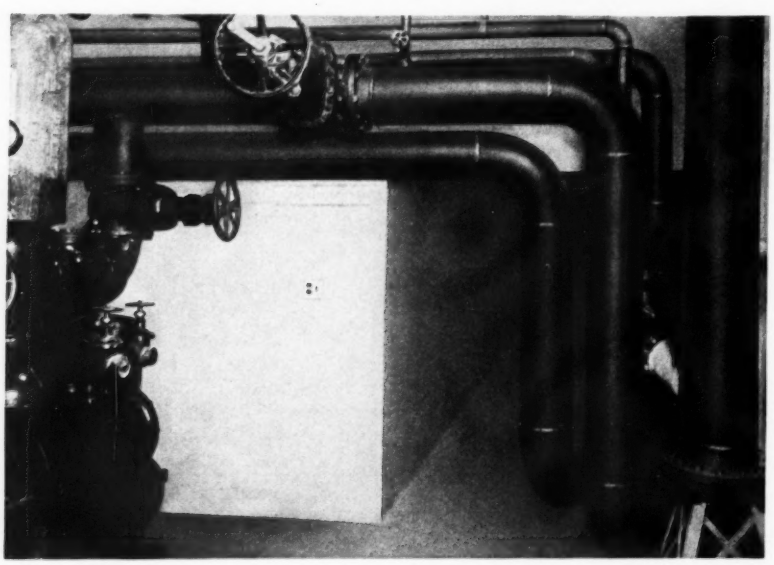
with Oxwelded Joints and Linde Process Service

AN old style 30-family building was to be modernized. All old piping had to come out. New piping, involving many more outlets was to go in. With oxwelding, the job could be done quickly and the ripping out of floors and walls could be held to a minimum. The contractor bid with confidence—knowing he could call on Linde Process Service for help.

Linde Service operators helped the contractor train and qualify his men in the latest developments in welding pipe. Valuable engineering help was given in overcoming structural difficulties in running pipe to new locations and in laying out new headers and special fittings for mains and risers. In many instances the nature of the work permitted the use of the oxy-acetylene blowpipe for hot bends.



Oxwelded piping is adaptable to all types of piping services. This elbow in brass pipe is part of a special branch for an air-conditioning system.



The joints for curving bends in a large heating line are made by Lindewelding—the new low-cost, high-speed welding process for steel pipe.

Oxwelding made possible a compact installation—leakproof and permanent. The work was completed in record time and substantial savings were made on pipe covering and other materials. When this job was finished the men were skilled in welding. The contractor, with the continued help assured through Linde Process Service, is ready to capitalize on the inherent advantages of oxwelding on any piping job. With this service back of him he can bid with assurance whether the project is for heating, water, air-conditioning or other service—no matter what metal is to be used—or whether the job is a new installation, an alteration, or a complete modernizing project like this one.

Linde Process Service is available to all users of Linde Oxygen. It can bring these same advantages to you. Complete details can be had quickly from the nearest Linde sales office.

PRODUCT OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

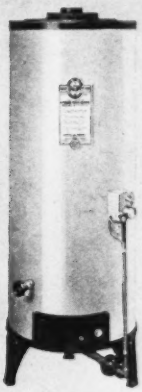
NRA CODE

Sales Offices: Atlanta Baltimore Birmingham Boston Buffalo Butte Chicago Cleveland Dallas Denver Detroit El Paso Houston Indianapolis Kansas City Los Angeles Memphis Milwaukee Minneapolis New Orleans New York Philadelphia Phoenix Pittsburgh Portland, Ore. St. Louis Salt Lake City San Francisco Seattle Spokane Tulsa

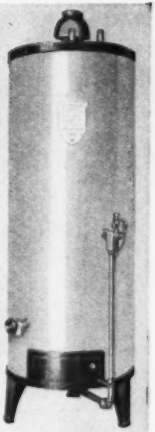
IN CANADA, DOMINION OXYGEN CO., LTD., TORONTO

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES • UNION CARBIDE

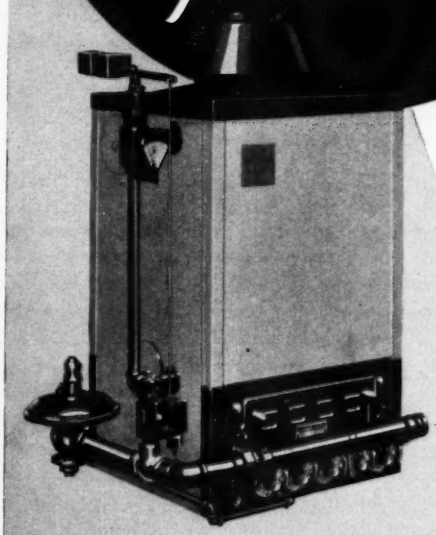
AGP PRODUCTS FOR DEPENDABLE *Gas heating*



AGP REGULAR GAS-FIRED AUTOMATIC STORAGE WATER HEATER. Galvanized or Everdur; 20 to 75 gallon sizes. *(left)*

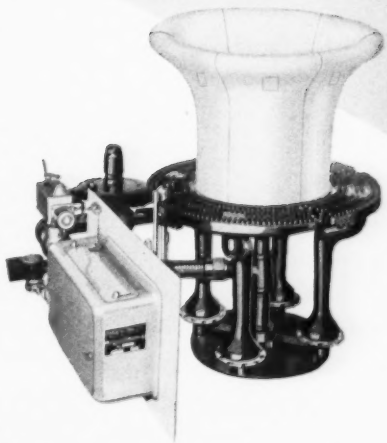


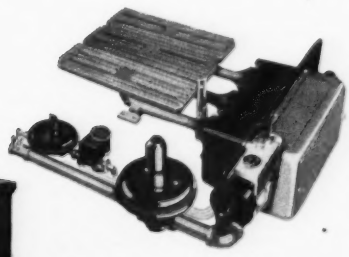
THE DICTATOR LOW-PRICED WATER HEATER. Galvanized or Everdur; 15 to 40 gallon sizes. *(right)*



AMERICAN GAS CONVERTOR

For any round type boiler or furnace. Includes a combination of features never before incorporated as standard equipment in a burner. "Tailor-Made" equipment for Arco Round Boilers.





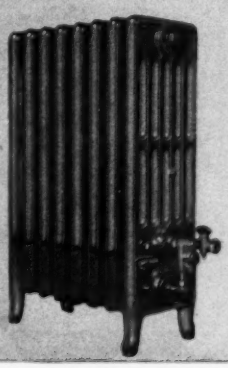
REDFLASH GAS CONVERTOR

Tailor made for Series No. 1 "Ideal" Redflash Boiler, all sizes. Compact, sturdy, silent, fully automatic.

AGP GAS-FIRED BOILER

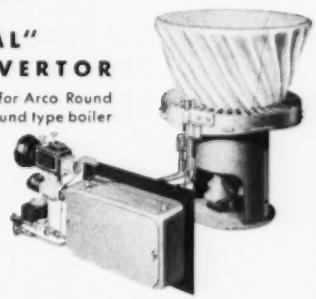
UNIT-OR GAS-FIRED HEATER

AGP GAS-FIRED STEAM RADIATORS



"IDEAL" GAS CONVERTOR

Especially adapted for Arco Round Boiler, but fits any round type boiler or furnace. All controls centered in a single valve.



NRA CODE

AMERICAN GAS PRODUCTS CORPORATION

DIVISION OF AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET · NEW YORK, N.Y.

"BRIDGEPORT" *Means* RUST-PROOF

FOR a long-life job—a job you can be proud of—use Bridgeport Copper Water Tube. Indoors as well as out, this high-grade 99.9% copper tube gives unvarying satisfaction wherever it is installed.

Being pure copper, it *can't* rust, of course. Takes the highest water pressures. Does not burst or crack even after a number of freezings. Bends without injury in settling ground. Brings good business to thousands of plumbing contractors who use it for hot and cold water lines, and heating lines, in place of rustable pipe.

Bridgeport Copper Tube is no waster of time, labor or fittings. Easily flanged or soldered for use with all standard types of flared or soldered fittings. Its flexibility takes readily to irregular wall layouts and between-wall locations.

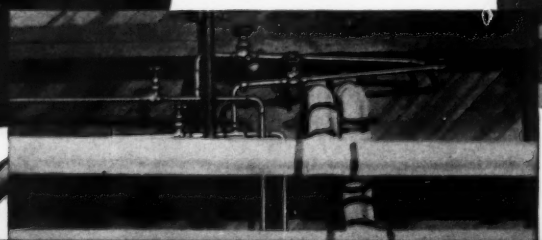
The name "Bridgeport," plainly stamped on the tubing, means *highest quality*. Ask for it at your favorite jobber's. Also, we shall be glad to send you our new booklet, "Bridgeport Copper Water Tube," upon receipt of post-card request. Write for your copy.

BRIDGEPORT BRASS COMPANY
Bridgeport, Conn. *Established 1865*

Bridgeport Tube can be "fished" through floors and walls in replacement jobs. Old rusted pipe can often be left in the wall.

Flanging the tube takes but a few seconds—and means a tight, permanent joint.

(At left)
Outdoor replacement jobs run smooth and easy with the help of flexible, rust-proof copper tubing. And because of low installation costs and long life, they cost no more than rustable pipe.

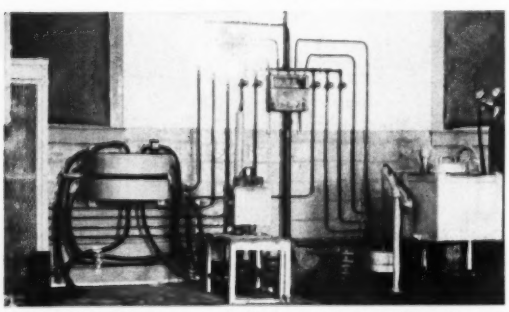


RIGID *copper water tube, with soldered fittings, adds*

BETTER • HOUSING • PROGRAM

This copper tube is RIGID *...yet it can be bent*

An installation of Revere Copper Water Tube (Hard Temper) with compression fittings. Notice the fine straight runs ... and the smooth bends made with a bending tool. No sagging, and only a few hangers. No threading, and very few fittings.



In Revere's own laboratory at Rome, N. Y. is an illustration of the varied uses of copper tube. In this installation, Revere Copper Water Tube with Streamline soldered Fittings is used to cool a high-frequency furnace. Notice how neat the bends are.

Here's a newer, better and more profitable way to make good-looking plumbing installations!

Revere Copper Water Tube (Type K: Hard Temper ... and Type L: Hard Temper, in sizes up to 1″) is rigid enough to give you long, straight runs; but it is so manufactured, that graceful bends can be made easily and accurately with an inexpensive, hand-operated bending tool. These bends save you many fittings, particularly elbows ... and let you take full advantage of the long lengths (20 ft.) in which this tube is available. Smooth bends have the added advantage of reducing flow-friction to an absolute minimum.

On almost every job, you will find places where this bending feature provides you with a real installation advantage. In some cases, like the one illustrated at the bottom of this page, it makes possible neat and trim installations that otherwise would prove quite cumbersome.

This tube has other important advantages. It is 99.9% pure copper and cannot rust, so it assures lifetime plumbing at little more than the cost of rustable pipe. Revere Copper Water Tube is available in three types (K, L and M) which meet government specifications for this product, and offer you a choice of tube to meet various corrosive conditions and price considerations.

We supply elbows and all types of fittings. We recommend Revere Copper Water Tube and Streamline soldered Fittings as they are perfectly matched to assure you a leak-proof connection.

Besides these installation advantages, Revere Copper Water Tube has important selling features. It is a *modern* plumbing pipe ... applicable in many fields ... opening up new avenues of business for you. You can sell non-rusting Revere Copper Water Tube at prices that are in most instances competitive with rustable piping ... make a fair margin of profit ... and add to your own prestige and prospect-list through the good-will of satisfied customers who tell others about you.

Revere Copper *and* Brass

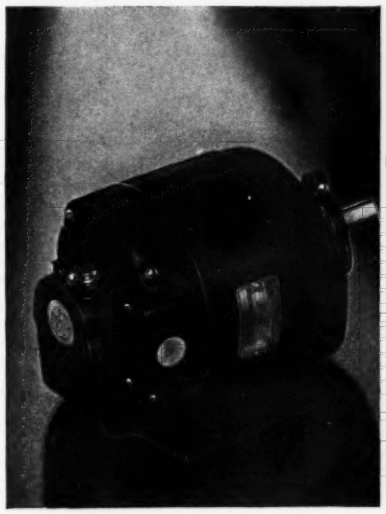
INCORPORATED

Founded by Paul Revere 1801

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS. NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

NRA CODE

DEPENDABLE ELECTRIC ACCESSORIES BUILD YOUR PROFITS



The RIGHT MOTOR for FANS and BLOWERS QUIET . . . CARE-FREE . . . EASILY INSTALLED

For belt-driven fans and blowers requiring up to 1/4 hp., you can't go wrong if you select the G-E Type KH split-phase motor (illustrated).

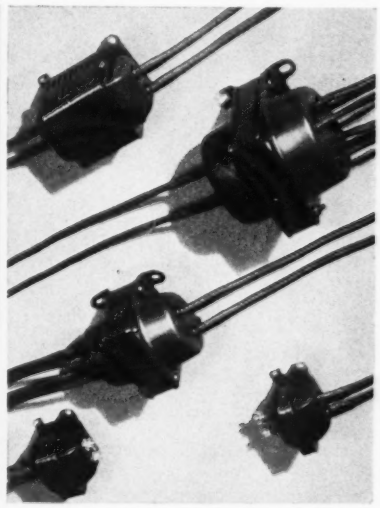
It's dependable. It's easily installed because of its simplified, built-in terminal box, and because of its slotted base, which reduces the adjustment of belt tension almost to a matter of seconds. Add to these a lubrication system that provides *once-a-season* oiling, drip-proof end flanges that keep maintenance *down* by keeping undesirable materials *out*, and cushioned-power rubber mounting, and you have an equipment "buy" that's built to last.

NEW, electrically operated VALVE SMALL . . . COMPACT . . . LOW-PRICED

Ideally suited to air-conditioning needs, this new electric valve will handle water or low-pressure steam quickly, easily, and economically, by remote control.

It provides positive operation over a wide range of pressures and temperatures. It is economical—it uses only 7 1/2 watts at 110 volts, 60 cycles. Its parts are sealed in steel —no stuffing box. A handy, built-in terminal box saves installation expense. A convenient metering pin provides 50-per-cent-flow regulation —no extra valve is needed.

If you have a large task for a little valve, this valve will save you money.



CASH IN ON THE COMPLETE LINE OF G-E CONTROL TRANSFORMERS

Small solenoids, relays, motors, lamps, and similar accessories needed for an air-conditioning installation often must be operated at various voltages—stepped down from the lighting circuit for safety, convenience, and simplicity of wiring.

There are standard G-E control transformers for many applications; your requirements for special voltages can be economically and quickly met from an extensive line of standard parts. May we send you information about these transformers?

To maintain and protect your reputation for service and dependability, it will always pay you to insist on the highest quality when buying electric equipment. For quality and correctness of design, order General Electric wire and wiring devices along with your motors, control, etc.

GENERAL ELECTRIC

General Electric Company
Dept. 6B-201, Schenectady, N. Y.

Please send me the following publications, as checked:

Name.....

Firm.....

Street.....City.....State.....

☐ GEA-1276A, Type KH Motors

☐ GEA-1847A, Solenoid Valves

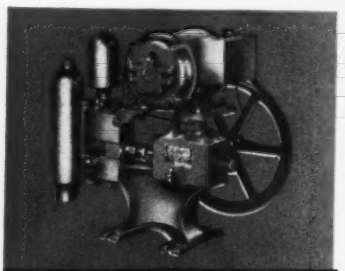
☐ GEA-1358, Control and Signal Transformers

☐ Also, please place me on your mailing list to receive regularly your information service covering small motors, controls, transformers, etc., for air conditioning.

070-80

Thankyou MR. DEALER

FOR THE ENTHUSIASM YOU HAVE ACCORDED *RED JACKET'S* NEW MODELS AND LOWER PRICES



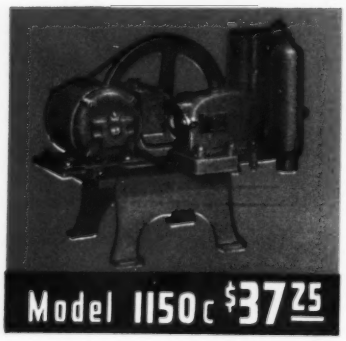
Model 1148 $33.50

Models 1148
225 GAL. PER HOUR
¼ H.P.—110 V. Motor. Pressure Switch with thermal overload coil and button, extra large bearing surface, bronze bearings, stainless steel piston rod, plunger easily removed; easy valve inspection.
With 15-gallon tank $39.95
With 42-gallon tank 53.50

Your response with orders, inquiries and letters strengthens Red Jacket's belief in our policy to give Dealers efficient, guaranteed Water Systems at prices that will *meet all competition,* and still allow Red Jacket's unusually *large discounts.*

A POWERFUL SELLING COMBINATION

A complete line of Shallow Well Water Systems with units starting at 225 Gal. per hour, costing consumer only $33.50, (*the lowest priced pumping unit dealers can buy*) up to 500 gal. per hour. Each model carries the full Red Jacket guarantee, is sturdily built of the finest material and is accurately tested in operation before delivery.



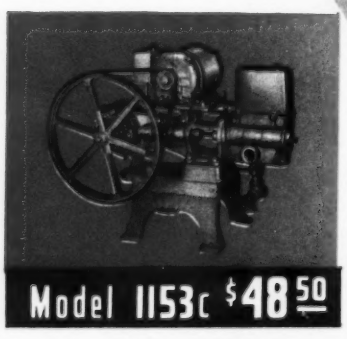
Model 1150C $37.25

Models 1150
250 GAL. PER HOUR
½ H.P.—110 V. Motor. Pressure Switch with thermal overload coil and button. Special water lubricated bearings.
With 9-gallon tank $43.75
With 20-gallon tank 46.50
With 42-gallon tank 57.25

Our *New 1935 Catalog* contains specifications of these Water Systems as well as the *new low prices* and *large dealer discounts.* Write for it today.

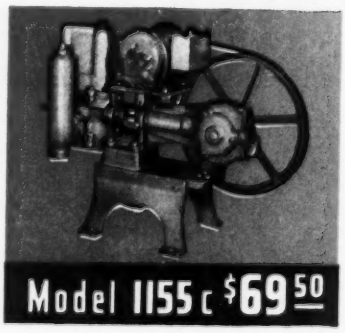
RED JACKET MANUFACTURING CO.
Davenport, Iowa

Red Jacket



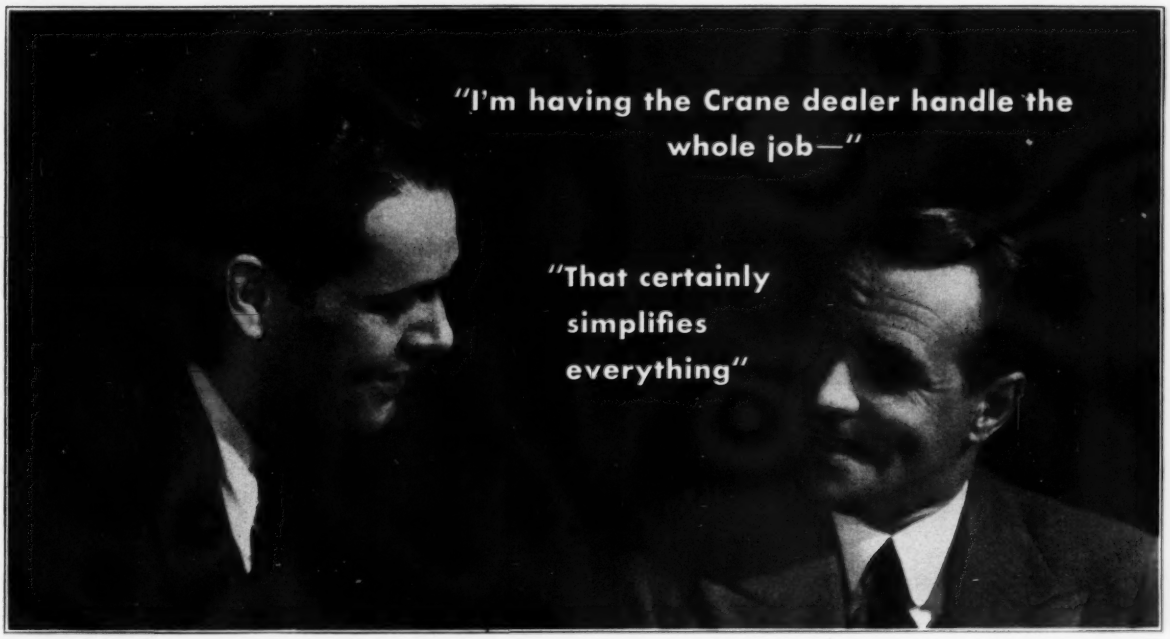
Model 1153C $48.50

Models 1153
350 GAL. PER HOUR
¼ H.P. Motor mounted on hinged base for easy belt adjustment; bronze main bearings. Lubricated by splash system. Pressure Switch with overload coil and button.
With 42-gallon tank..$68.50



Model 1155C $69.50

Models 1155
500 GAL. PER HOUR
Motor: ½ H.P.—110-220 V. Thermal overload coil and button on Pressure Switch. Splash lubrication. Heavy steel shaft; extra long bronze crosshead. Hardened steel wrist pin; stainless steel piston rod.
With 42-gallon tank..$89.50



You Can Profit by Taking the Whole Job... Crane Helps You Get It With Fair Prices, Quality Materials and an Easy Payment Plan

A property owner would rather deal with you than with a half dozen people. He trusts you. He saves time and trouble when you give him an estimate that includes *all* the work.

Get in the habit of handling the *complete* job, from heating and plumbing to kitchen and bathroom modernization. You *make more profit*—and Crane has a complete line that helps you make the sale!

The Crane Finance Plan Makes Selling Easy

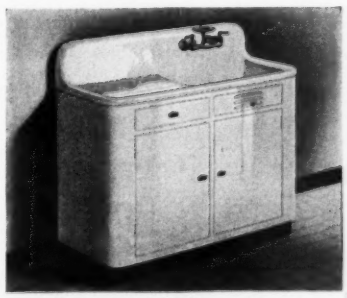
You can go to a property owner, help him arrange a Crane loan and get immediate credit investigation without a cent of cost to you.

A homeowner has three years to pay. You help him select his equipment from the complete Crane line of heating, radiation, plumbing, fixtures, valves and fittings.

When the work is done you get your money *promptly!*

Use Crane Showrooms and Services

There are Crane showrooms, dealer helps and merchandising services to help you. Make use of them. Crane branches will see that you get your materials quickly. Call on us to help you make *bigger sales* in 1935!



MODERNIZE THE KITCHEN with a cabinet sink. Specify Crane Sink C 19230-LZ with C 19968 Cabinet.

INSTALL A NEW TOILET like this NEUTON washdown with its new low set shelf top tank C 11125-JA.

SELL FUEL ECONOMY in this Crane sectional coal boiler with its *controlled water travel* and elongated flue passes that stop heat waste.

CRANE PLAN GIVES YOU QUICK ACTION— QUICK PROFITS!

Help property owner make application . . . get credit approval from Crane Cashier . . . make the installation . . . submit note to Crane branch . . . get money!

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.
NEW YORK: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

A TIMELY TIP!

Join With

RUNNING WATER
YOUR FAMILY DESERVES IT

MYERS

and make the

SECOND CAMPAIGN

[Starting February 1st, 1935]

"To Sell **RUNNING WATER** to the Rural Market" and to All Other Markets in Your Locality

Successful and Profitable

Completeness of the MYERS Line of Pumps and Water Systems + Quality + Dependability + Service + Low Prices + Advertising + National Housing Act Recognition + Public Utility Co-operation + a Waiting Market will lead to largely Increased Sales and Profit for Myers Dealers During 1935.

WRITE or WIRE

THE F.E. MYERS & BRO. COMPANY

ASHLAND, OHIO.

Announcing~

LOWER PRICES

on

MYERS

SIX INCH STROKE DEEP WELL WATER SYSTEMS

Lower Prices on Myers Six Inch Stroke Self-Oiling Deep Well Power Pumps and Water Systems—the finest we have ever built with many important improvements and of the same high quality and performance—make this announcement of outstanding importance to pump and water system dealers everywhere.

They are not new, untried units, quickly designed to meet any particular market or condition but are the same regularly catalogued, precision built, time tested, popular sizes that have been and are now being nationally advertised and sold.

Our new Catalog, No. 67, is now being mailed to our trade. If you are a Myers Dealer or Distributor you will receive your copy shortly. If you are not selling Myers Pumps and Water Systems at present, we suggest your writing us immediately for a New Myers Catalog, complete information and NEW LOW PRICES.

FIG. 2700

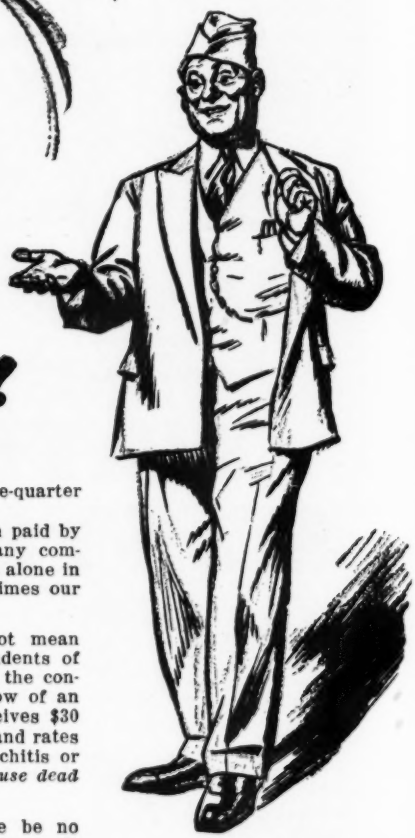
Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

THE F. E. MYERS & BRO. COMPANY

ASHLAND, OHIO.

PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

Which man deserves your tax money?



Let's Smash the Pension Racket *Now!*

You, Who Pay the Bills, Read This

WAR OF 1812:—Last soldier died 1905. Five widows, one remarried widow and one daughter still receiving benefits.

WAR WITH MEXICO:—Last soldier died 1929. 415 widows still receiving benefits.

CIVIL WAR:—$7,698,000,000 paid to date, with approximately $98,000,000 present annual out'ay. *All veterans and war widows entitled to benefits.*

SPANISH AMERICAN WAR:—$811,819,000 expended to date. Annual outlay more than $110,000,000. *Virtually all veterans and war widows entitled to benefits.*

WORLD WAR:—The United States is already committed to pay $3,496,284,155 between January 1945 and January 1955 on the 3,541,067 outstanding bonus certificates. Cash in the form of loans on these certificates has already been paid to veterans amounting to $1,659,000,000. The prepayment proposal now being urged upon Congress would mean a further heavy increase in payments to veterans over the staggering sum of three and one-half billion dollars to which the Government is already committed.

DO YOU KNOW—That the amount we pay our veterans annually has increased since the World War until today it represents about one-quarter of all Federal internal revenue?

That this cost is comparable to the sum paid by France, Great Britain, Italy and Germany combined, although their dead and wounded alone in the World War were more than three times our total mobilization?

THIS HUGE EXPENDITURE does not mean that deserving veterans and the dependents of the dead are receiving full justice. On the contrary. Consider the fact that the widow of an emergency captain killed in action receives $30 a month while the captain, who is alive and rates a 30% disability (such as chronic bronchitis or fainting spells) receives $150. *Is it because dead men cast no votes?*

ONLY THE FIRST STEP:—Let there be no illusion about the prepayment of the bonus. It marks the beginning rather than the end of veteran benefits running to gigantic totals. The veterans' lobbies at Washington are active and powerful. The next move will be for a veterans' pension that may ultimately be extended to all of the 4,300,000 men mobilized in the World War. If we are going to stop that racket the time to smash it is now.

This Is Your Fight

Wire or write your Senators and Representative to fight against the bonus prepayment; also put yourself on record by sending in the coupon shown below

Here's How You Can Help Stop It!

The American Veterans Association, consisting solely of veterans, is fighting to protect and defend the rights of *the truly war disabled* and *the dependents of the war dead* against political exploitation. We believe that Federal compensation in the form of war pensions should be restricted to:

1. *Those wounded in combat.*
2. *Those suffering from injury or disease incurred, in fact, in line of duty.*
3. *The dependents of those killed in action and of those who died of wounds, injury or disease incurred, in fact, in line of duty.*

If you are against prepayment of the bonus and believe in pension reform based on the three-point plan of the American Veterans Association, here is your opportunity to register your vote. Remember, you pay the taxes that pay the pension bill. Unless you are on the alert and prevent a repetition of the pension rackets of the past, your great, great, great grandchildren will be paying pensions for the World War in the year 2040.

MAIL THE COUPON

CITIZEN'S VOTE, American Veterans Association
420 Lexington Ave., New York City, N. Y.

Please record me as opposed to prepayment of the bonus and in favor of the A.V.A.'s three-point Pension Program.

Beyond urging this program on our Congressmen, it is understood that no obligation of any kind is involved.

Name .....

Address .....

.....

"Justice to the WAR WOUNDED, Justice to the WAR DEAD, Justice to the AMERICAN PEOPLE"

LET THIS FINE RETURN LINE PUMP OPEN THE WAY TO BETTER HEATING

The way to economical heating is open wide to the owner of a Vapor Turbine Return Line Vacuum Heating Pump. For this pump is not only economical in itself, but promotes new standards of economy in the system.

In the first place this remarkable pump requires no electric current, eliminating immediately the one biggest expense item in the operation of an ordinary return line pump. This is because the motive power is a special turbine which operates on any system, above or below atmosphere. It costs little to run because the steam driving the turbine passes back to the heating system. None is wasted.

The really important saving promoted by the Vapor Turbine is in the system itself, however, for this is the only heating pump that can operate continuously with economy. Continuous operation means absolutely uniform circulation, and every engineer knows that this ideal condition in the system means a big saving of steam.

Just the mechanics of this pump make an interesting story. The one moving part, the absence of wearing parts, the elimination of interior lubrication, the compactness and simplicity, all are important to you. Bulletin 203, sent promptly on request, gives all the facts.

THE NASH ENGINEERING COMPANY

SOUTH NORWALK, CONNECTICUT, U. S. A.

BETWEEN OURSELVES

Thanks:
"I think you are doing a good job editorially."
M. S. F.,
New York.

The Prize Winner

The big contest among readers of DOMESTIC ENGINEERING, inspired by the prizes we offered and by the natural desire to see the FHA program produce business, comes to a climax in this issue with the announcement of the prize-winner.

Sales Ideas

To you the report on the following pages means a good deal more than just learning that some one won a prize. We are able to show you in a complete reproduction of photographs and sales ideas, just how this winner has made the national remodeling program produce plumbing and heating business for him.

Thank the Judges

Judging this contest was not a simple matter as enough readers told us what they had done and how they have done it, to make the final choice a question of careful analysis. For DOMESTIC ENGINEERING, we certainly want to thank the three judges, President Calnan and Secretary Gawne of the N.A.M.P., and Secretary Radder of the Plumbing and Heating Industries Bureau, for the conscientious manner in which they checked the entries.

Read His Story

You will want to read every word of what this prize-winner has been doing during the past few months. Our report shows just how he has been getting business through the openings offered by the FHA, and there are enough pictures to make up and clarify every sales point he makes. This prize-winner follows a definite program.

Brings in Business

The purpose of this campaign was to interest our readers in this big national remodeling movement, to stimulate more of them to prompt action through our prizes and then to tell through DOMESTIC ENGINEERING how these prize-winners were doing their job. Measured on that basis, the campaign was thoroughly successful. In early issues as well as in this number, we have been able to tell you how readers have been getting business.

Our Readers Lead

It is not just a coincidence that so many successful sales ideas have been uncovered and reported to you through this campaign because federal records show that the plumbing and heating dealers have been getting the greater proportion of the money spent for remodeling work. And you will recall how in our last issue, our own survey showed that the plumbing and heating dealers were leading all others in spending money for advertising to support FHA.

HOLC Repairs

Government activities in other directions show the continued appreciation of the importance of the building industry. A few days ago, the Home Owners' Loan Corporation reported cash expenditures of 45 million dollars in reconditioning 250,000 homes which HOLC had refinanced. This is out of a total of 747,676 homes on which HOLC has loaned $2,261,585,353.

Specifications for Repairs

This same HOLC, with a statement that home owners must be assured of the best quality of material and workmanship, has just issued a 32-page compilation of master specifications for home reconditioning work. We have sent to Washington to find out what this book contains and if you are interested, drop us a line and we will try to tell you what kind of standards this book sets for plumbing and heating.

Help Building

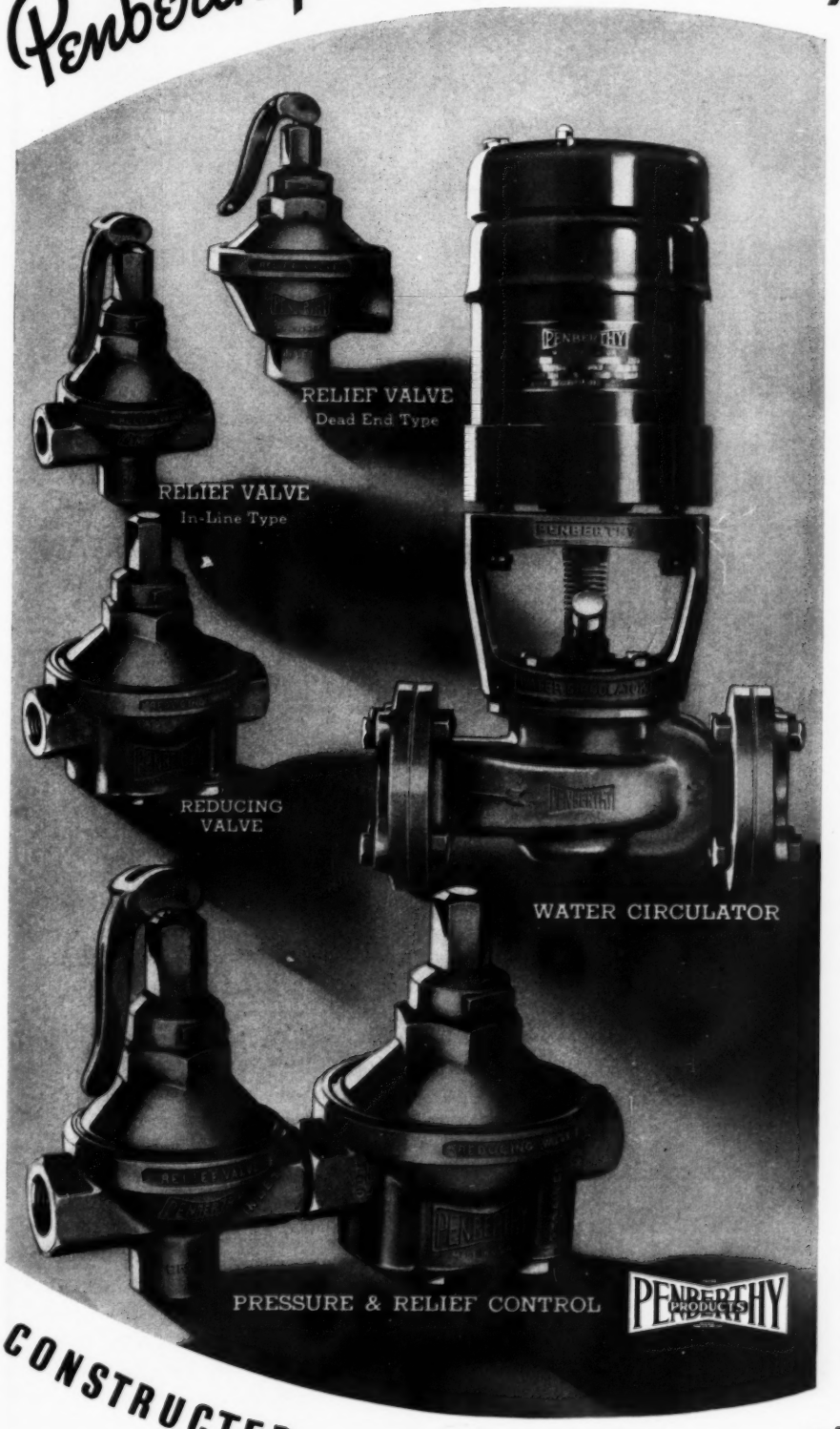
With the President's program for work relief occupying the center of the recovery stage for 1935, it is interesting to find government officials starting an inventory of public work projects which can be financed under this $4,800,000,000 bill. Public Works Administrator Ickes has asked state and municipal authorities and other public bodies to report on the proposed projects by March 1. Included in the list of projects on which this advance information is asked are water supply systems, sewer systems, public buildings, swimming pools and other recreational facilities and slum clearance and housing projects.

Next Month

Watch our March issue for the announcement of a campaign in which you can take part.

Your Editor

Penberthy Hot Water Heating Specialties



HIGHEST QUALITY OF DESIGN MATERIALS AND WORKMANSHIP

WATER CIRCULATOR

Modernizes old hot water heating plants, also makes hot water preferable to steam for new systems. Important advantages are (1) immediate heat, (2) reduced fuel cost, (3) uniform heat distribution throughout system, etc.

Condenser start condenser run type motor is especially designed for quiet operation and freedom from radio interference. All moving parts are sound insulated from circulator body. Self-adjusting packing requires no attention. Double inlet balanced type impeller offers no resistance to gravity flow. Impeller shaft is Monel Metal. Made in 3 sizes for 1½", 2" and 3" pipe connections.

PRESSURE & RELIEF CONTROL

Automatically keeps system filled with water and relieves any excess pressure. Complies with A.S.M.E. Code and has lever for testing relief valve. Both valves have large laminated phosphorous bronze diaphragms that are very sensitive and positive in action. Special composition discs provide perfect seating. Springs are carefully calibrated and have exceptionally high fatigue resistance; spring below seat makes reducing valve more sensitive at lower pressure differentials. Large brass strainers protect seats of both valves.

REDUCING VALVE

Automatically reduces available water pressure and maintains desired working pressure regardless of fluctuations in supply line. Complies with A.S.M.E. Code. Laminated phosphorous bronze diaphragm is resistant to heat and corrosion. Large brass removable strainer protects seat. Springs are carefully calibrated and have high fatigue resistance; spring below seat makes valve more sensitive at low pressure differential. Made in 6 models having ½", ¾" and 1" pipe connections.

RELIEF VALVE

Excess pressure in system is automatically relieved. Complies with A.S.M.E. Code and has lever for testing. Laminated phosphorous bronze diaphragm and carefully calibrated spring assure maximum efficiency. Large brass strainer protects valve seat against injury. Both types made for ½" and ¾" pipe connections.

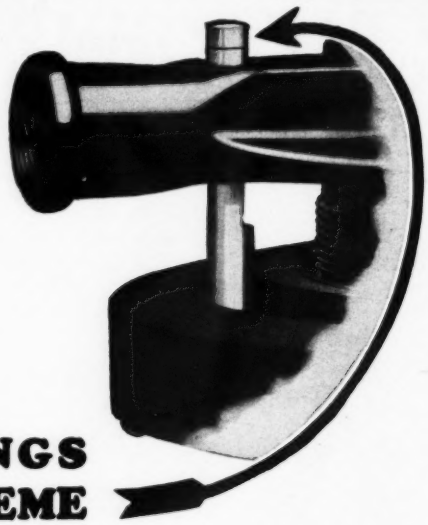
PENBERTHY INJECTOR CO.

Mfrs. of Quality Products Since 1886

DETROIT, MICH. • WINDSOR, ONT.

LEADING DISTRIBUTORS
STOCK THESE
SPECIALTIES

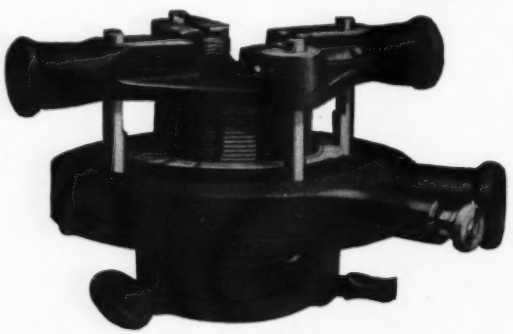
CONSTRUCTED OF HIGH GRADE STEAM BRONZE



IT'S THESE LITTLE THINGS THAT MAKE "TOLEDO" SUPREME

TRADE-MARK REGISTERED

"TOLEDO" No. 1—1" to 2"
PLAIN THREADER
NET PRICE COMPLETE
$9.00



"TOLEDO" No. 1A—1" to 2"
RATCHET THREADER
NET PRICE COMPLETE
F. O. B. Your Dealer's Stock
$11.25

Hardened steel, riveted taper pins, line marked for standard, over or under size threads, assure the user of a genuine "TOLEDO" tool, smooth perfect threads and satisfactory service long after other pipe threaders are worn out. All parts of a "TOLEDO" tool are accurately machined and fitted with precision. High speed steel 2" dies are furnished as regular equipment and all dies made from the finest tool steels, carefully hardened, assure the utmost in die service. Simplified construction with minimum number of moving parts. Light enough to permit easy handling. Heavy enough to withstand hard service.

These are a few of the many reasons for "TOLEDO'S" consistent leadership among pipe tools for nearly 35 years. No finer pipe tools have ever been made. No finer pipe tools are made today than genuine "TOLEDO" trademarked tools.

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

New York Office: 72 Lafayette St.

OUR INDUSTRY

February, 1935

Win A Prize

This issue brings you the complete story in word and picture of the successful methods followed by the winner in our prize campaign. The success of that campaign and the help it has brought to our readers adds importance to the announcement you will find of another prize campaign for our readers.

Stop Waste in Our Homes

Modernizing, repairing and reconditioning property is an investment. The type of thinking which has prevailed during the past few years has unfortunately put that investment into the class of an expense. Your job now is to show your customers that continued neglect of needed repairs is downright waste and that real saving requires such work to be done now.

Property allowed to run down simply piles up additional expense for its owner. Saving a few gallons of paint now is likely to mean a bigger bill later to replace rotted sills or flooring. Hanging on to old plumbing may mean continued loss of rental from idle houses and empty apartments. Delaying repairs or replacement to a heating system means a continued and unnecessary burden of operating cost through refusing to take advantage of the newer and more efficient products which the manufacturers of our industry have developed in the past several years.

Carried to a logical sequence, a poorly maintained house is a charge on the whole neighborhood, helps to depreciate surrounding property and carried along ultimately turns a good neighborhood of stable investment value and good rental returns, into a slum district.

Normally we Americans like to own our homes. We like to keep them up. There is no sound reason why more and more of your customers should not do the normal thing now and make the repairs and the replacements which they have delayed. The FHA program makes the financing easy, whether for modernizing or for new construction. Further delays by your customers are no longer a saving. It is piling up a greater expense which prompt action today will save.

Many of our readers have become aroused to the fact that more business is now ready for the alert contractor-dealer who goes after it. Time and delay have worked in our favor and now is the time to realize on your opportunity.

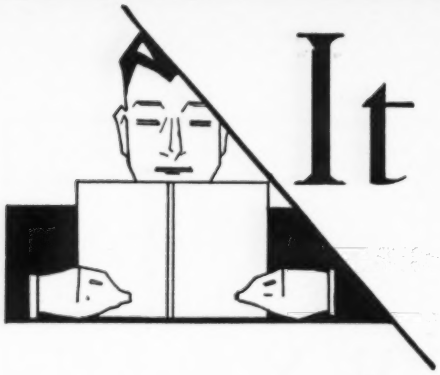
More Business

The bulk of the requests reaching the Federal Housing Administration for insurance of modernization loans, cover repairs planned to the bathroom, the kitchen or the basement. And these are proving to be more than just requests, as plumbing and heating products from the beginning have been out in front for actual expenditures, with $25 to $30 out of each $100 loaned going for the goods our industry provides.

The FHA has favorably impressed most of us as a business like and business producing organization. Just now, with 1935 conventions of plumbing and heating associations getting under way, it is encouraging to find the FHA providing competent speakers to talk to these groups to explain the provisions of the FHA program which cover both modernization and new construction. The first of these talks was given at the Illinois convention by Percy Wilson, regional director at Chicago, and won a rising and spontaneous reception from his audience and an unanimous pledge of support for the FHA plan.

The prize campaign of DOMESTIC ENGINEERING, the final winner of which is announced in this issue, has proved by the results our readers reported, that this industry has taken hold of FHA. Our January issue showed how plumbing and heating contractors were the outstanding advertisers of the whole building industry, in trying to interest home owners in FHA loans and in repairs.

Both the results already secured and the prospects for greater results as more of our industry's dealers take up the FHA sales drive, promise a positive and impressive increase in business for this industry.



It happened

Study Shows that Plumbing and Heating Costs are Down

During recent months there has been a great deal said, by economists, to the effect that one of the principal reasons the volume of sales in durable goods has fallen so low is that prices of such goods have been held up while the national income has been reduced so drastically that these goods could not be bought except where absolutely necessary. These economists point particularly to the building industry. They say that prices of labor and materials in this industry remain practically the same as in the boom days.

They go on to state that there cannot be a return to a sound and permanent era of prosperity until these prices have been adjusted.

These comments, although aimed at the building industry in general, give the impression that prices in our industry are too high. As a matter of fact, exactly the opposite is true. Prices in this industry are the lowest they have been in twenty years. Just what the price trends of four staple items have been over the past twenty years are shown in the charts marked Figs. 1, 2, 3, and 4. These charts are based on figures recently compiled by the Plumbing and Heating Industries Bureau.

The government's report of November, 1934, on wholesale prices shows exactly the same trend. This report gives the general wholesale price level as 76.5 per cent of the 1926 level. Plumbing and heating material is 68.1 per cent, or more than 10 per cent below the general average.

In 1933 plumbing and heating prices were about on a par with the general average of wholesale prices. However, shortly after the FHA was announced, prices were reduced to take advantage of the easier credit terms and the interest in modernization that this Act created. That this move had the desired effect is indicated by the fact that in October, 1934, shipments of practically every item in the industry showed substantial increases over 1933. Although figures are not available as yet for December, reliable reports indicate that these increases were not only maintained in that month but may be even greater.

Just how substantial these increases were is shown in the following tables:

Plumbing Brass Shipments

October, 1934—957,873 pieces.
October, 1933—695,863 pieces.

Vitreous China Fixture Shipments

October, 1934—197,855 pieces.
November, 1934—160,205 pieces.
October, 1933—99,403 pieces.
November, 1933—64,199 pieces.

Cast Iron Boilers

October, 1934—44,837 tons.
November, 1934—24,683 tons.
October, 1933—34,215 tons.
November, 1933, 20,122 tons.

Radiation

October, 1934—9,292,000 sq. ft.
November, 1934—6,456,000 sq. ft.

Fig. 1—The upper curve here shows the price trend for one piece sinks. Fig. 2—Lower curve indicates the trend for tubs

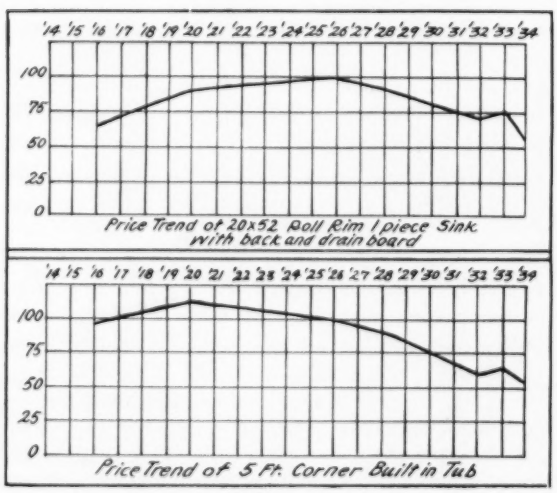
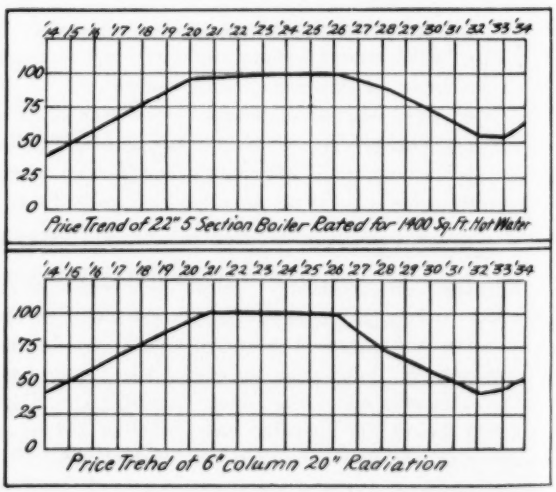
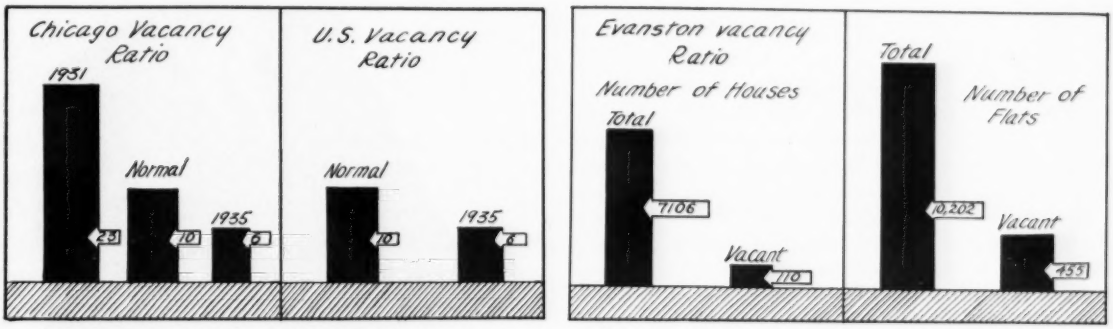

'14 '15 '16 '17 '18 '19 '20 '21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31 '32 '33 '34
100
75
50
25
0
Price Trend of 20x52 Roll Rim 1 piece Sink with back and drain board
Price Trend of 5 Ft. Corner Built in Tub

Fig. 3—Price trend for boilers is indicated in the upper curve Fig. 4—Lower curve shows that radiation prices are down


'14 '15 '16 '17 '18 '19 '20 '21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31 '32 '33 '34
100
75
50
25
0
Price Trend of 22" 5 Section Boiler Rated for 1400 Sq. Ft. Hot Water
Price Trend of 6" column 20" Radiation

this month!



Department of Commerce reports show vacancies which are indicated in these charts. The new building needs are obvious

October, 1933—6,076,000 sq. ft.
November, 1933—4,794,000 sq. ft.

Sell the Farmer Plumbing

A number of years have come and gone since the farmers of this country have been able to plan a program of renovation for their homes. They have been forced to be content with inadequate plumbing and heating facilities, and in a startling number of cases do entirely without the comfort of a bathroom, and postpone the installation of modern heating plants until that hoped-for date when they have the money to carry out the work, or have credit means to supply the funds. Now they have a long deferred opportunity. They have some money and they have real, worthwhile credit facilities.

The Federal Housing Administration is now operating to enable the farmer to secure this money, and the Department of Agriculture is lending aid to the farmer in making every dollar buy its utmost.

Already some concerns are running a jump ahead of the pack, and have obtained a gratifyingly large portion of new business. There is a field for plumbing and heating here that should interest every phase of the industry from the manufacturer to the small dealer. The farmers' needs for repair and replacement are estimated by survey at one billion dollars.

The farmers have been canvassed to learn if they would be interested in borrowing for the purpose of reconditioning their holdings. The canvass showed that almost 30 per cent of them were ready to borrow. Others have savings that they are willing to part with for this purpose, and still more have been the recipients of benefit payment checks.

Large Market for Heating Equipment

In a speech, delivered January 17th, before the Anthracite Club of New York, Ward M. Canaday, Director of Public Relations of the Federal Housing Administration, pointed out that there are approximately 29 million homes in the United States of which 25 million are unit dwellings. According to the real property inventory recently completed by the government, 49 per cent of the dwellings surveyed are not equipped with furnaces or boilers. Sixteen millions were found to be in need of immediate repair.

Among other interesting experiences, he related the work which one salesman in South Dakota recently did. In his town of 1,000 inhabitants, he sold 6 automatic stokers in one day, all of which were financed under the FHA.

Has Financed Five Thousand Loans

The Heating and Plumbing Finance Corporation, subsidiary of the American Radiator & Standard Sanitary Corporation reports a 318 per cent increase in business during 1934, according to L. H. Goldbright, Jr., vice president-treasurer of the Finance Corporation. These figures include the purchase of 5,735 transactions amounting to $3,000,387.51. "As we were 26 per cent behind on August 10, 1934, as against the previous year," Mr. Goldbright adds, "this would reflect a total increase of 344 per cent."

Secures FHA Loan for Boiler in 15 Minutes

The manager of a branch bank in San Francisco recently reported what is probably record time for the granting of a modernization or repair loan.

During one of the recent cold spells on the Pacific Coast, a home owner called at the bank, at 3:40 o'clock, reporting that the boiler in his home had broken down completely and that it would be necessary for him to borrow money to install one.

At 3:55 o'clock the manager of the bank telephoned him. His application had been approved. His money was awaiting him.

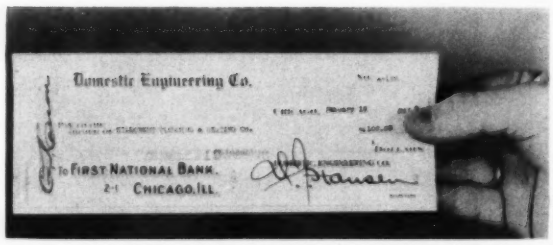
FHA Prize Contest brings

THE turning over, through President John J. Calnan of the National Association of Master Plumbers, of the DOMESTIC ENGINEERING check for $100.00 to John Kuenzli of the Hillcrest Plumbing and Heating Co., Oak Park, Ill., climaxed our national campaign to make the FHA program produce more business for the plumbing and heating industry.

The campaign was thoroughly successful as measured by the interest it aroused, by the number of readers who sent in examples of their sales work and by the high character of sales ability shown by those readers. In particular, the group from which the prize winner was finally selected disclosed a genuine capacity for sales initiative in making use of this new government aid.

You will find it of interest to learn briefly about this campaign because such information will serve you in connection with future DOMESTIC ENGINEERING programs.

Simultaneous with the outline by the then new Federal Housing Administration to the plumbing and heating industry of the government's plans for increasing modernization work, DOMESTIC ENGINEERING made its announcement of the prizes to stimulate readers to prompt use of this national drive. The purpose of the campaign was to help our readers secure more business. It was felt that cash prizes distributed over a period of several months and concluding with a major prize of $100.00 would draw quickly into support of the FHA plan a greater number of readers. In addition, it was felt that the obligation of a business paper like DOMESTIC ENGINEERING was to help as many readers as possible learn quickly of the best sales methods being used.



Facsimile of photograph showing the $100.00 check which was awarded the Hillcrest Plumbing and Heating Company as the winner of the grand prize

Measured by those standards, the campaign has been all that we hoped for. Entries began to reach us quickly and our November and December, 1934 issues, our

John J. Calnan

Plumbers Lead in the Support of FHA.

Statement by John J. Calnan, President National Association of Master Plumbers

I have watched with a feeling of pride the prompt manner in which so many plumbers have supported the modernization program of the Federal Housing Administration. This prompt support together with the essential advantages of the products we sell, have united to bring a large share of the business created by the FHA to our industry.

In serving as a judge in the contest carried on by DOMESTIC ENGINEERING *to encourage quicker support of this national program, I have again verified an important fact. That is that a great many plumbers are carrying out their obligations as the retail distributors of*

out Remarkable Sales Ability shown by Contractor-dealers

plumbing products in a manner which merits the praise of all branches of the industry. The entries in this contest have shown in many cases a high standard of sales initiative and ability.

The choice of a winner was not an easy task. I feel sure that as you study the methods followed by the winner, you will find in those methods ideas which can be adapted to your own business.

In bringing sharply into focus the work of the plumber in support of FHA, DOMESTIC ENGINEERING *has performed a notable service not only to its readers but to the entire industry.*

John J. Calnan.

January issue of this year and the present issue, all have brought to our readers helpful sales methods.

Of note is the government's record of business done which shows that between $25.00 to $30.00 of each $100.00 spent in this national campaign has gone for plumbing and heating products.

The other fact is one brought out in the last issue of DOMESTIC ENGINEERING, based on a research we conducted through the building pages of newspapers from all parts of the country. A detailed counting of these advertisements showed that the plumbing and heating contractors were paying for one-fifth of all the advertisements backing up FHA. When the count was limited to those in the building industry, the proportion of advertisements paid for by the plumbing and heating dealers was one-third.

Group present at the award of the prize. Left to right, Joseph G. Hildebrand, executive secretary, N. A. M. P.; R. V. Sawhill, editor, DOMESTIC ENGINEERING; Chas. E. Gawne, secretary, N. A. M. P.; John Kuenzli representing Hillcrest Plumbing and Heating Company; John J. Calnan, president, N. A. M. P.; O. T. Carson, publisher, DOMESTIC ENGINEERING; Norman J. Radder, secretary manager, Plumbing and Heating Industries Bureau; and Peter M. Munn, secretary to president, N. A. M. P.

The judges in this campaign were John J. Calnan, president of the National Association of Master Plumbers; Charles E. Gawne, secretary of the National Association of Master Plumbers, and Norman J. Radder, secretary of the Plumbing and Heating Industries Bureau.

We are glad publicly to back up our previous acknowledgment of thanks to these three judges for their work in connection with this campaign and the thoroughness and sincerity with which they applied themselves to the choice of the prize winners.

The ninety other prize winners are as follows:

1. Gesling Plumbing Co., 113 South Columbus St., Lancaster, Ohio.
2. Moersch & Degnan, 112 North Tenth St., Escanaba, Mich.
3. H. A. McAuliffe, McAuliffe Plbg. & Htg. Co., Broadway & Fir, Indiana Harbor, Ind.
4. Frank J. Klimm Co., Inc., 456 Ellis St., San Francisco, Calif.
5. John M. Forhecz, Jr., 200 Division Ave., Garfield, N. J.
6. Wm. Roebel, Jr., Courtland Plbg. & Htg. Co., 2012 Courtland Eve., Ft. Wayne, Ind.
7. Dominic J. Piscitelli, 537 Union Ave., Westbury, Long Island.
8. Arthur Johnson, 2121 Grant, Berkeley, Calif.
9. Jimmie West, 7616-5230 S. Vermont, Los Angeles, Calif.
10. Lewis J. Eron, Eron Plbg. & Htg. Co., 195 Second St., N., Wisconsin Rapids, Wis.

(Continued on Page 153)

What Others Say of FHA Promotional Effort

Goverment speakers use contest letters in talks

A LETTER from the Federal Housing Administration in Washington, D. C., in regard to the information about plumbing and heating contractors' FHA activities, which was furnished them, states that FHA speakers have been given sales information developed by this contest.

As a result of learning of plumbing and heating contractors' FHA activities, the talks of FHA speakers before plumbing and heating groups have been changed so that only 40 per cent of the speeches are on FHA while 60 per cent are on sales ideas developed by contractors and discovered through this contest. The result is that these FHA prize winning sales ideas are being carried to all parts of the country.

Contest has Stimulated Our Industry

Statement by Chas. E. Gawne, Secretary, N. A. M. P.

Remodeling work has always been the backbone of the business of many successful plumbers. For that reason when the national government, through the FHA, announced its drive for the promotion of repair and jobbing work, it was obvious that the plumbing and heating industry would be one of the principal industries benefited.

The action of DOMESTIC ENGINEERING in announcing a prize campaign intended to help its readers secure such business more rapidly, is an indication of the definite service which a live and aggressive business paper can give to an industry. My work as a judge in the contest carried on by DOMESTIC ENGINEERING has shown me more clearly how many of its readers use the sales helps and engineering articles as a means of promoting and developing their business.

Also, I was favorably impressed with the quality and character of the material turned in by those readers. It showed that many of them have used real sales initiative and ability in working out individual methods to make the FHA program improve their business. As secretary of the National Association, it makes me proud to give this public recognition to the manner in which so many plumbers are doing outstanding selling jobs.

This FHA campaign has brought many millions of dollars to our industry. The prize campaign which DOMESTIC ENGINEERING has just concluded certainly helped to stimulate our industry to quicker action. I hope that similar efforts will be made in coming months, feeling sure that from such future programs plumbers all over the country will continue to secure a proportionately high share of this business.

Chas. E. Gawne

Inspiration to Other Contractors

Statement by Norman J. Radder, Secretary-Manager, Bureau

What are we getting out of the FHA?

Is the master plumber taking advantage of his sales opportunities under the FHA?

Entrants in the contest sponsored by DOMESTIC ENGINEERING have written the answers to these questions.

Note, for instance, this quotation from a letter by Moersch & Degnan, Escanaba, Mich.

"In direct contrast to the usual slump in our line of work during the month of November, this year, thanks to the FHA, we added $3,714.15 to our sales and have been able to retain our entire force at work."

This comment by the Michigan firm of plumbing contractors is typical of the point of view expressed by entrants in the contest—all pointed to increased business and modestly cited sales opportunities which they had grasped.

It was an inspiration to read the letters from the contestants, backed up, as most of them were, by exhibits of advertisements, before and after pictures, and sales portfolios.

It should be an inspiration to other contractors and to manufacturers and wholesalers to know what is being done by the master plumber of today. These letters show him to be an alert, aggressive and intelligent merchandiser.

His methods are original—they are not copied blindly from those used by salesmen of refrigerators, automobiles, and radios. They are distinctive methods adapted to the peculiar conditions of the plumbing and heating industries. They are methods born out of experience in selling and sound training in the plumbing and heating crafts.

The Bureau recommends to the publishers of DOMESTIC ENGINEERING that a concise summary of the methods used by the more outstanding entrants in the contest be made available to all members of the Board of Directors of the National Association of Master Plumbers and to all state and regional directors of the FHA. Both of these groups should have many occasions, particularly at state conventions, to refer to an outline summarizing these methods, the success of which has been so convincingly demonstrated.

Norman J. Radder

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A New Prize Contest

$ $ $ $ $ $ $ $ $ $ $ $

See March Issue

ALTHOUGH the FHA has brought about a remarkable increase in business in many sections of the country, its progress to date might be considered preliminary to the big results it will produce in the coming months when coupled with the normal increase in spring business and the generally improving business conditions. Likewise, the DOMESTIC ENGINEERING FHA prize contest just completed has merely shown what properly directed and stimulated efforts of plumbing and heating contractor-dealers throughout the country, have just started to do in increasing business. Therefore, the big results are yet to come. DOMESTIC ENGINEERING will announce in March a bigger FHA prize contest, with bigger prizes, by way of continuing to stimulate our industry in the sale of plumbing and heating products and services. Contractors, jobbers and manufacturers—the entire industry will be included in this announcement.

Watch for the March issue of DOMESTIC ENGINEERING for complete annoucement of prizes and rules

Complete FHA and Wins

Fig. 1—The smile of the winner is shown on Mr. John Kuenzli's face. This picture was taken just after Mr. Calnan, president of the N. A. M. P. presented him, as representative of the Hillcrest Plumbing and Heating Company, with the $100.00 grand prize check. Mr. Kuenzli tells, in this article, how his company follows a complete plan in developing and obtaining FHA jobs

"WHEN the Government announced in their program they would have an Act making it possible for the home owner to have funds to modernize his home, we became interested. This Act was known as the Federal Housing Act, and we prepared a campaign to use it to its fullest extent. Previous to this time, there were a number of home owners with the idea of modernizing, but they lacked the means of doing so.

OUTLINE COVERS MAIN ACTIVITIES

"The following outline is the course we followed in using the FHA:

1. Checked over all old bids on jobs that could not be sold on account of finances.
2. Selected means of advertising and getting ourselves in front of the people interested in FHA work.
3. Made necessary arrangements at our own bank.
4. Prepared a suitable showroom.
5. Affiliated with the FHA and Master Plumber exhibit in Oak Park.
6. Worked out method of procedure.
7. Developed the idea of asking neighbors about prospects for remodeling work.
8. Developed means of helping sell modernization work.
9. Used the FHA in getting another remodeling job.
10. Worked out future plans.

"The following tells more about these separate parts of our program and describes how they worked together to obtain new and increased business for us:

1. Checked over all old bids on jobs that could not be sold on account of finances.

"In checking over the old figures on work, we found a bid on two new bathrooms in a two-flat building. Originally we sold the owner a kitchen sink and also quoted on two new bathrooms. We called on the customer, telling her that the Government was making it possible for her to obtain a loan at 5 per cent to remodel her bathrooms. The result was we secured a contract ap-

Program Results in Sales the $100.00 Prize Contest

The judges of the contest had a difficult task in deciding upon the prize winners. This was due both to the large number of entries from which to select the winners and to the excellence of the leading letters

proximating $1,000.00, and her loan was one of the first FHA loans to be paid out by the Continental Illinois Bank of Chicago.

2. Selected means of advertising and getting ourselves in front of the people interested in FHA work.

"Inasmuch as the newspapers, magazines, etc., as sponsored by manufacturers and sales organizations were shouting FHA loans to the skies, and telling the public to 'see your plumber,' our idea was that one of the logical places for a prospect to look for the plumber would be in the phone book or local newspaper. In the local newspaper, in order to head the alphabetical list of all building contractors, we inserted our ad under BATHROOM REMODELING. In our ad in the phone book,

Fig. 2—A part of one of the Chicago World's Fair plumbing exhibits which attracted thousands of visitors last summer was bought and set up in this show window. Almost immediately, a cash remodeling job resulted from it. A count was made to see how many passers-by were attracted. It showed 82 out of 100

we mentioned that we are organized to work in connection with the Federal Housing Act." See ads marked Figs. 9 and 14.

3. Made necessary arrangements at our own bank.

"We made arrangements at our bank for a speedy credit check so that no time would be lost in being able to tell the customer how soon work could be started. We also made arrangements with the bank so that the money would be paid out only to us upon receipt of orders signed by the owner. This eliminated the chances of the owner getting the loan, then the money, and not paying us. The Government or bank does not guarantee the owner to pay the contractor as far as we know.

4. Prepared a suitable showroom.

"Our idea of a showroom was to have a very attractive and entirely different set-up. The square bath tub with its extraordinary background, displayed at the exhibit of the Standard Sanitary Manufacturing Company at the World's Fair in Chicago, attracted a great number of people. Our thought was if it did this at the World's Fair, why wouldn't it do the same thing for a contractor in his own showroom? When the Fair closed down certain of the exhibits were bought by us and the one showing a new square tub was set up in our showroom, with its original background. (See Fig. 2.) A count was taken of the people passing by and eighty-two out of one hundred stopped and looked. To draw more attention to the showroom, we had Neon arrows made to add to our window signs, pointing towards the display. This was installed on a Friday and on the following Monday, a customer for a complete bathroom was obtained as a result of it. The job was cash.

5. Affiliated with the FHA and Master Plumbers Exhibit held in Oak Park.

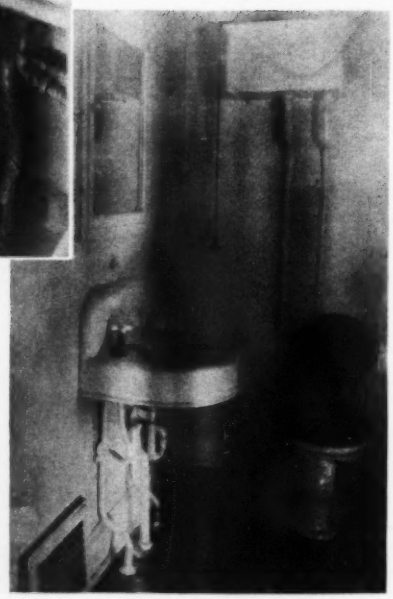

Fig. 3—Here are the before views of one of the Hillcrest FHA jobs. Match these up with the others on these two pages

Fig. 4—Arches were used on this job to make less apparent the slope of the roof. The Hillcrest company handled the entire job including plastering, painting and the like

"The Oak Park Chamber of Commerce and a group of contractors organized an exhibit of all materials and trades necessary for the modernization of homes. In this exhibit, the West Suburban Master Plumbers Association, of which we are members, had four booths. At first the plumbing contractors in this association thought the correct thing would be to have the salesmen of the manufacturing concerns that were displaying their products there, to speak to the prospects that came into the booths. In visiting the exhibit one night, we found that the salesmen did not have the practical knowledge that was necessary to convey to the prospects what could and what could not be done in the remodeling of their bathrooms. We suggested to the president of the association to have different plumbing contractors there according to a schedule. The result of this exhibit for us was the complete modernizing of a bathroom.

EIGHT DAYS FROM START TO FINISH

The story is as follows: "We meet prospect Wednesday—bathroom is completed week from Thursday.

"The owner stopped in at the FHA exhibit in Oak Park, and became interested in plumbing fixtures. He called on us to quote him. On Wednesday evening, we submitted a price on a complete change in his bathroom.

(See Figs. 3, 4, 5, 6 and 7.) The ideas and price were very satisfactory so we had the owner answer the questions necessary in filling out the FHA application for a loan. We always carry blanks with us. Thursday, we applied to our bank for this loan, the loan was approved Friday, the contracts and the notes were signed Saturday, work was begun Monday and the bathroom was finished Thursday.

6. Worked out method of procedure.

"The following is an outline of our method of procedure in selling:

a. Use photographs of previous work for reference.

b. Take entire contract, including plumbing, heating, tile work, plastering, carpenter work, painting and the like.

c. Fill out loan application after quoting price and have owner sign loan application on the basis of determining whether or not a loan can be obtained.

d. Upon obtaining bank's agreement to make the loan, submit contract with plans or sketches, if necessary.

e. Arrange for loan to be paid out in two payments, one upon completion of roughing, and the other upon completion of the entire job.

f. Leave owner satisfied in every respect.

Fig. 7—This modest but well kept home contains the bathroom shown in the views on this page

g. Request information about neighbors who contemplate doing remodeling work.

7. Developed the idea of asking neighbors about prospects for remodeling work.

"The idea of asking a customer about his neighbors doing any work resulted in a modernizing job which we sold for over five hundred dollars. The customer in question had been having her beauty work done in her neighbor's beauty parlor at home. During the discussion at one time, the neighbor stated that she considered remodeling her bathroom. Our customer called us and told us that her beauty operator was a prospect, and as a result we remodeled her bathroom. This idea seemed so practical and produced such good results, that during

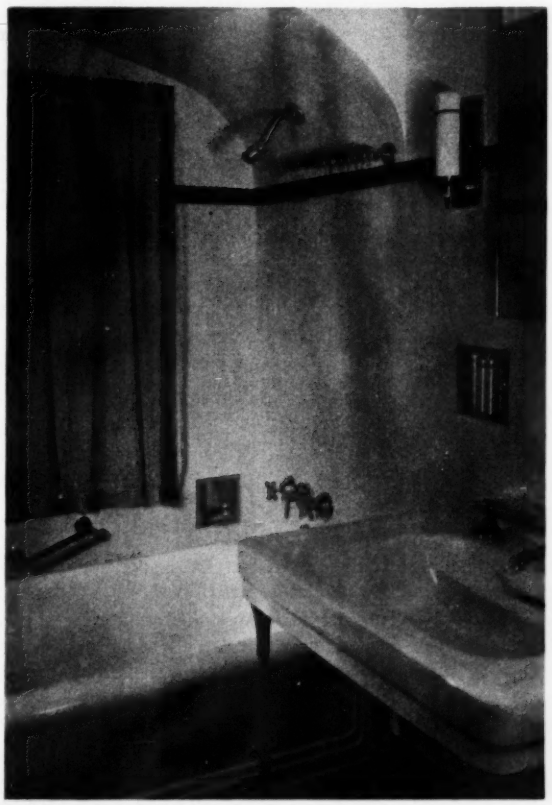

Fig. 5—The arch over the tub was worked out with the idea of permitting the installation of the largest possible window and at the same time avoiding the appearance of unproportioned largeness

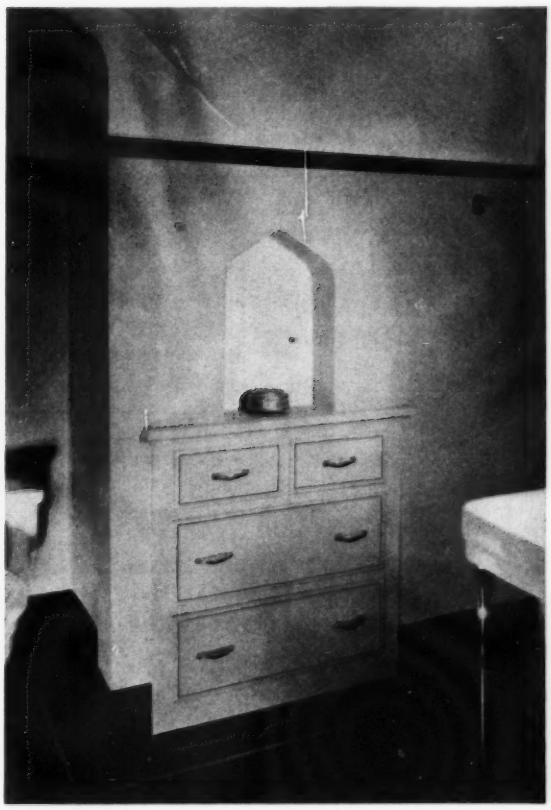

Fig. 6—At the right is the linen case which was installed. Note that an arch even was made here to conform with the plan of the entire room

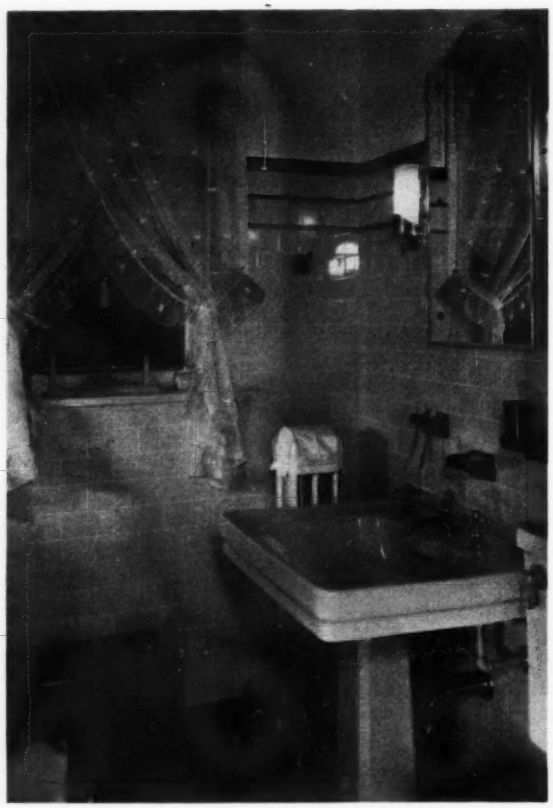

Fig. 8—The remodeled bathroom above is one of two which the Hillcrest company installed in the apartment building shown in Fig. 10

Fig. 9—Below is a reproduction of the plumbing and heating ads used by this company in their local telephone directory. Notice they mention they are qualified to work under the National Housing Act

74 PLA—PLU Classified Telephone Directory of Oak Park, Forest Park and River Forest

IMMEDIATE PLUMBING SERVICE
CALL
DAY **EUCLID 221** NITE
Complete Bathroom Moderniza
Installed on Easy Time Payme
Air Conditioning, Oil Burners, B
Gas Equipment, Sales and Serv
Everything in Bathroom Furni
Qualified Contractor Unde
National Housing Act
HILLCREST
PLUMBING a
HEATING C
509 Madison St. Oak

EST. 1880
QUICK SERVICE
L. A RAIN & CO

Platers
Madison Plating Wks Inc 1140 Madison, E

Playgrounds
Anderson Hans Playground Hayes av., E
Carroll Lewis Playground Kenilworth av., E
Stevenson Robt Louis Playground Lake, E

Plumbers
Andrus Ray 1113 Lake

"WHERE

Heating Contractors—Steam
GLIDDEN HEATING CO (Not Inc) 930 North St. Euclid-479

Heating Engineers
Hillcrest Plumbing & Heating Co 509 Madison, Euclid-221
(See our display adv. at this section)

IMMEDIATE HEATING SERVICE
Call
DAY **EUCLID 221** NITE
HILLCREST
PLUMBING & HEATING CO.
509 MADISON ST. Oak Park . .

Fig. 10—All types of buildings are prospects in this work. This two-apartment house contains two Hillcrest remodeling installations which were made possible by FHA

Fig. 11—This small bungalow contains the new bathroom which is shown in the illustration on the next page, immediately to the right

the holidays, we made a personal call to all the customers of the past two years, giving them a holiday gift, consisting of a jar of fixture cleaner, put up in a nice Christmas package. Indirectly we inquired as to whether or not any of their neighbors were contemplating remodeling. We have a number of prospects to call on in the spring as a result of this.

WOMEN LIKE FIXTURES CHANGED

8. Means of helping sell modernization work.

"All women like a change. They are constantly changing the location of their furniture throughout the house and they are just as interested in changing the location of their plumbing fixtures in their bathrooms. It has been a great help in the selling of our bathroom remodeling jobs to show a plan making a more practical arrangement of the fixtures. For instance we put arches over the recessed bath tubs, linen closets in bathrooms, control the lights by a switch at the door, provide Venetian medicine cases with side lights, locate showers over the tubs, and suggest tile walls, vitrolite walls, linoleum walls, or imitation tile walls. All of this gives the home owner a great selection as to what can be done.

9. Used the FHA in getting another remodeling job.

We furnished and installed new fixtures on the first floor in the house shown in Fig. 13. The lady of the

home spoke of a new bathroom upstairs, to be built this coming spring when money would be more plentiful. We completed the first floor work and by this time, there were rumors of the FHA. The owner was hard to approach, so we delayed sending the bill for the first floor work until the FHA was in existence. Then we had a positive excuse for seeing him. We promoted the idea of a new bathroom to the customer and the means of paying for it with Government money, offering him a good discount if he went ahead with the work immediately. This discount amounted to more than the cost of financing the work. After making a number of calls on the owner, he agreed to go ahead. Before the work was completed, his business had picked up to such an extent that he paid cash for the entire job."

The job is shown in Figs. 13 and 14.

10. Worked out future plans.

"With all of this as a basis of our continued activities, we intend to forge ahead with FHA work, and by spring we feel that the general improvement in business and

Fig. 12—Immediately below is another Hillcrest bathroom which job was obtained through a tip from a satisfied customer. This company is working to build up an endless chain of this kind

Fig. 13—At the bottom of the page is the exterior of a home having a job which was started by FHA but which paid out in cash

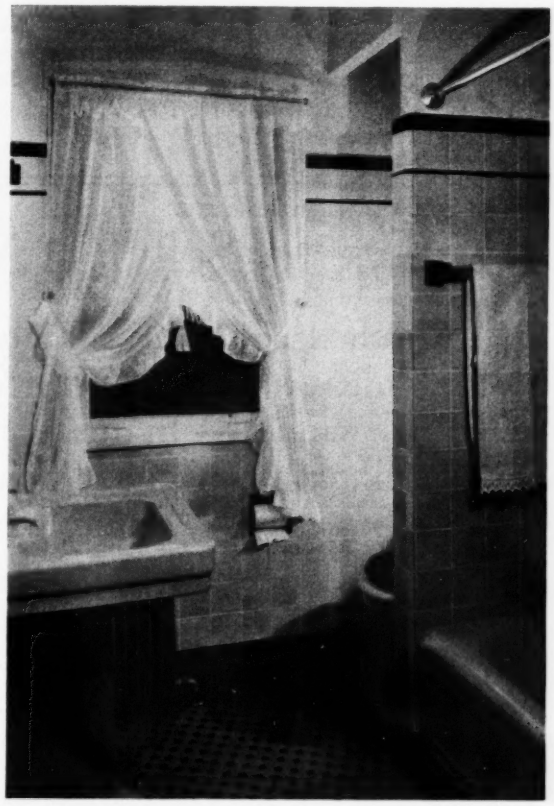

Fig. 14—In advertising themselves with other building contractors in their local newspaper, the Hillcrest company listed themselves under "BATHROOM REMODELING" so that they would be at the top of the alphabetical list

Fig. 15—At the bottom is the remodeled bathroom installed in the home shown in Fig. 13. Here the fixtures were changed from their original positions in the old bathroom

for any purpose are in a position to take advantage of the new credit system of the United States government. These loans draw only 5 per cent in- your si Any o pared arrang

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Euclid 221

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325 South Elmwood
Village 8222

A. H. Regan
819½ Lake
Village 6370

Fred H. Snay

Organ Bros.
Lake Street at Desplaines R
Euclid 5102

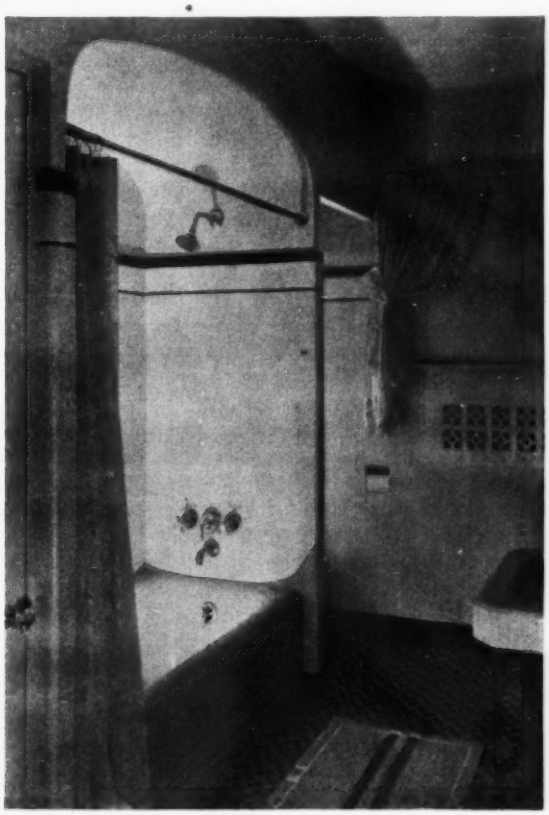
H. H. Stocker
1104 South Maple
Village 6057

DECORATORS

B. M. Norton & Co.
133 Forest Avenue
Euclid 9830

ELECTRICAL

Dean Electric Const. Co.
1013-15 Garfield Street



customer reaction to FHA will justify our adding to this program, additional ideas including an extensive advertising campaign, directed to those whom we serve.

"We are offering these ideas with two thoughts in mind. First, this is our entry in the DOMESTIC ENGINEERING FHA contest; Second, we want it to be our contribution to the ideas which our fellow contractors will use and which, we hope, will help to keep the plumbing industry in front in this national housing movement."

Other Prize Winner Tells Experiences

By A. S. Blunk Heating Company, Louisville, Ky.

First and foremost, as a formerly dejected member of the plumbing and heating trade, may I take my hat off to the FHA as the good old morale booster, the doctorer of jaded spirits that have come via the route of poor business and unfavorable prospects.

Its influence has been favorably felt in our organization from helpers to the heads of the firm and on to the wholesalers with whom we deal and the home owners whom we serve.

But enough of generalities and let me tell you something of what the FHA has actually done for us. It came along just when we needed it and helped to make September the biggest month we have had in years, business amounting to as much as we had done in the six months previous. Business had been on the upward trend all year, but there was much that we could not get because we had no finance plan to offer and owners could not borrow and pay from their earnings and were afraid to stake their savings.

When September came we had a man with us who had been working hard on sales all summer, calling diligently on prospects, many of whom bought, but many of whom did not for want of a way of financing the proposition. Imagine what the FHA did for his morale! He fairly radiated new inspiration and enthusiasm, and the way he went after those old prospects with the story of the FHA turned many a prospect into a sale. Take for example three stokers which he sold. The owner was a woman, owner of considerable property and with a very good income but not sufficient for her to see her way clear to make a cash outlay for two stokers, that she was then considering for two apartment buildings. When the FHA was explained to her, she immediately investigated it, qualified, and instead of buying two stokers, bought three, two for her apartments, and one for her own residence.

It is not true now, but at first it was necessary to do a lot of missionary work, as we found that Mr. General Public had never heard of the FHA and when told was skeptical of its workings as applied to his particular problem. Such a case was that of a family of foreign origin, Americanized to the point that they must have a bathroom. They had saved up and bought the house in which they were living, and then had started saving toward a bathroom, but the bank in which they had their funds closed and swallowed up these savings. Starting again they saved and this time kept their money at home in a sock and thinking to have enough, they asked us this fall as to the cost of a bathroom. A bathroom cost more than their idea of what it should, that is the kind of a bathroom that they wanted, for nothing but the best of everything would please "Mama" and "Papa" wanted "Mama" to be pleased.

The intricacies of the FHA were hard to get across to them, and after their sad experience with the bank failure, they were skeptical of anything that had any connection with a bank or banker. Finally convincing them that "Uncle Sam" himself would be back of them this time, they bought the bathroom.

A man with a warm air furnace in very bad repair came to us about fixing it up. It was actually beyond repair and a fire hazard, and we told him he needed a new furnace. "Yes, I know very well I need a new furnace," he replied, "but I simply haven't the money to buy one, and you'll have to patch the old one up some way." "But you do not need any money," we told him, and he laughed at us. "Don't need any money," he scoffed. "There must be a catch in that."

To bring an end to the story, he bought a new furnace under the FHA. It was arranged for his convenience that monthly payments of $10.00 each could be made at our office, and every month as regular as the day rolls around his young daughter comes in with the money and as pleased as a peacock to be paying on a new furnace.

Two small residence heating jobs rolled in to us, one almost on top of the other by reason of the fact that they could be financed through the FHA. One was in rental property where the owner had been finding it difficult to persuade the tenant to stay because of inadequate and expensive-to-operate heating equipment.

Aside from the instances I have cited, and many others that I could tell about, FHA has helped not only us but our entire community. In fact it might be said that it is making us a nation of "Friendly Homes Again,"

90 Ways to Sell FHA

The March Issue will contain selected ideas from the ninety other prize winners. In this, you will find material which will help you do a better FHA selling job.

Fig. 1—Window display which has been developed for dealers who are handling water systems in cooperation with nation-wide movement to promote water supply sales and installations

Start Second Campaign in Water Supply Drive

Activities last fall resulted in increased number of sales

ON about February 1st the Electric Water Systems Council will start its second drive which is to continue until June 30th. The first step will be the mailing to all water system dealers of a supplement to their original plan book. This supplement will explain in detail how the plumbing dealer can tie in with this nation-wide campaign and obtain his share of the water system business that will result.

Broadsides, window displays, seals and other advertising material will be furnished free to any plumbing dealer. Leads will be furnished by manufacturers and mats for newspaper advertisements will be furnished free, so that the dealer can develop further leads and at the same time establish his place of business as the local headquarters for this campaign. More than 300,000 broadsides were distributed to consumers during the first drive and as many or more will be distributed during this second drive. Many manufacturers have increased their advertising appropriations as much as 50% to assist plumbing dealers with further leads.

In addition, local power companies will furnish dealers with lists of their customers who do not have water systems.

So that the plumbing dealer may attract attention to his show window and at the same time identify his place of business as water system headquarters, the Council has developed an unusually attractive window display illustrated on this page. It is equipped with a light and a motor so that when operating, it has the appearance of running water.

The F. H. A., according to Mr. Wallbaum, has been of great assistance in this campaign. The easy credit terms which allow the dealer to collect his full amount and terminate his responsibility immediately, while the owner has up to three years to pay, makes it possible to obtain business that cannot otherwise be sold. It

not only helps by making it possible for the owner to buy, but in addition, eliminates the necessity for any great amount of capital on the part of the dealer.

With farm income improved, prices the lowest and equipment the best in the history of the industry, and a nation-wide campaign for running water being conducted by the Electric Water Systems' Council, any efforts put forth toward the sale of water systems by plumbing dealers should bring real results.

The work of the Electric Water Systems' Council in 1934 has *again* proven the power of united action. Largely as a result of the work of this council water system sales in October and November were 9,850 units as compared with 7,595 units in the same months of 1933—an increase which amounts to 30 per cent.

According to W. H. Wallbaum, chairman of the Public Relations Committee, this council is made up of water system manufacturers and electric power companies. Its purpose is to sell running water regardless of whose equipment is used. Its accomplishments are a boon to the entire industry, for every water system sale represents an opportunity for the sale of additional plumbing and heating equipment.

Some conception of the possibilities for the sale of this type of equipment may be gathered from the fact that in a typical state, Illinois, out of 43,573 farm homes that have electric power only 8,960 have electric water systems.

Why Cross Connections are Health Hazards

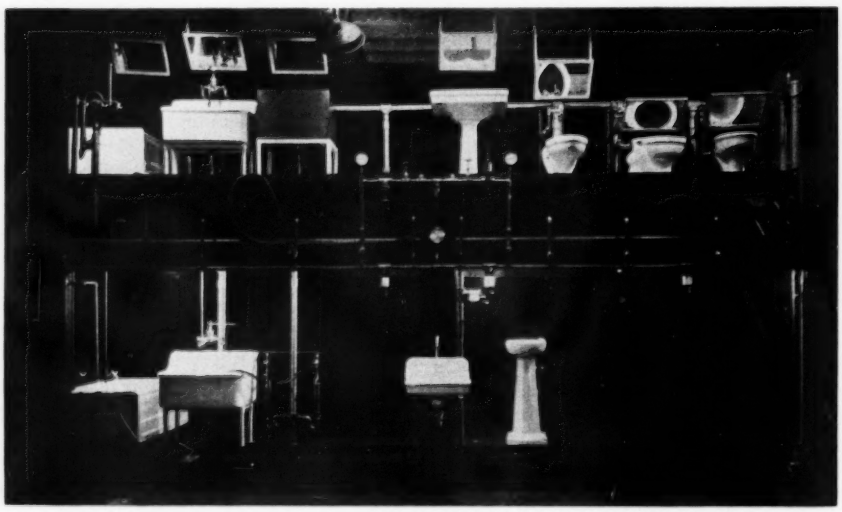
"Observance of code would have prevented outbreak"

By Herman N. Bundesen, M. D.

It is not enough to ascertain that an outbreak of disease was caused by poor plumbing. It is necessary to find and correct other examples of unsafe plumbing which may cause future outbreaks of disease. The future installation of unsafe fixtures and connections must be prevented, by having work done only by thoroughly competent master plumbers, eliminating "handy-man" installations, and by educating property owners to recognize that their own interests are best served by that requirement. Also master plumbers themselves must be alert to keep abreast of new developments, so that when a man places the lives of his dear ones in their hands, they will be able to measure up to the high responsibility they carry.

The public health profession is rapidly reawakening to the importance of plumbing in the prevention of disease, as the result of the country-wide outbreak of amebic dysentery in 1933, which had a focus in two hotels in Chicago.

Any device in which a vacuum is produced has possibilities of trouble, if it be directly connected with a drain pipe. For example, not long ago, an investigation was made of the cause of several deaths of babies which occurred within a short period in a large hospital. Among other things, it was found that the autoclave in which the babies' nursing bottles were sterilized had a drain pipe leading to a slop sink in another room.



This illustration shows a test set-up in the shop of Hanley and Company in Chicago. It is designed to show how simple back siphonage can contaminate the water supply

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This drain was constantly filled with water because, for most of its length, it was lower than its outlet in the slop sink. Our engineers discovered that each time the autoclave was used, the vacuum produced by condensation of steam after sterilizing the nursing bottles, sucked about 300 cubic centimeters of water lying in the drain pipe back through a leaky check valve into the sterilizer. This water ran out the door of the autoclave when it was opened, into a pan on the floor beneath and, undoubtedly, it frequently contaminated both the nursing bottles and the hands of the attendant, who took them from the autoclave and filled them with milk. Whenever the outlet of the slop sink or the drain below it became stopped, the outlet of the autoclave drain would become submerged in the contents of the slop sink and the siphoning action of the vacuum in the autoclave would carry such sink contents into the drain pipe, thus contaminating the water constantly filling this pipe. Such contaminating materials would find their way from the sink into the autoclave and to the nursing bottles and attendants' hands. This occurrence emphasizes the need for proper supervision of plumbing.

FOUR OUTBREAKS TRACED TO WATER

In our city, there have been four outbreaks of disease during the last two years, which were traced to contaminated drinking water. Two occurred through cross-connections in the plumbing systems of factories, installed by the factories in violation of law. The salient facts may be of interest.

In June, 1933, the foreman on the eighth floor of a factory asked for more water. The engineer of the building sent an ignorant workman, not a licensed plumber, to make a connection to a city water pipe to supply the additional water. He thought he could save an hour by doing the work contrary to his instructions and, unknowingly, he made a direct cross-connection between the city water and a pipe carrying an industrial water supply taken directly from the sewage-polluted Chicago River. An outbreak of diarrhea immediately followed. Owing to the color and taste of the water, a cross connection was suspected by the factory management. They investigated, found it, and removed it after it had been in place for three days. On one of these three days, the factory operated, and it was shut down on the other two, which were Saturday and Sunday. Nothing was reported to the Board of Health at the time, either about the diarrhea and nausea, or about the cross connection.

A little later, we heard of the outbreak, but no cross connection could be found, the factory having already removed it. The trouble was blamed by the factory upon decaying fish in a dead-end street main nearby.

On July 3, 1933, one of the employes came down with typhoid fever. Knowing that dead fish couldn't be the cause of this disease, we demanded the truth, and a confession was made by the factory superintendent about the former existence of the cross connection. The patient died on July 10. A subsequent examination of stool specimens from all employes, for Entameba histolytica, indicated that a considerable proportion were carriers and one active case of amebic dysentery developed.

The other factory outbreak occurred in December, 1933. The diarrhea and nausea affected the greater part of the force of 375 employes, but was not reported at once. Five days after it commenced, an employer asked to have the drinking water tested and, upon being questioned as to the reason for his request the existence of the epidemic was learned. Within the next three hours, the plumbing inspector I sent there had discovered a cross connection between the city water and the river water supply used for cooling and fire protection. Three typhoid fever cases and one amebic dysentery case developed among the employes.

Although, during the summer of 1933, our inspectors had discovered a priming connection from a city water pipe to the pump handling river water, and had required it to be removed, the engineer of the factory didn't take much stock in the idea that cross connections were dangerous. Therefore, when it was necessary to shut down the river water system during the first part of December, to install some new screens in the intake at the river, he cross connected the city water system with the river water pipes, in order to fill the boilers and be ready to operate on the following Monday. Then, when the river water pump was started, the sewage-polluted water passed through this cross connection into the drinking water. Because of his inability to learn safe practices and his indifferent attitude, the engineer of the factory was replaced with a more up-to-date man. Here, also, an examination of stools from all employes was made between January 8 and 16, 1934, and 73 carriers were found. In addition, all the food products made in this factory during the time the cross connection existed, which were likely to be eaten without further cooking, were required to be reprocessed, in order to assure that disease could not be spread through them to the consumers.

OBSERVANCE OF PLUMBING CODE NEEDED

In both of these factory outbreaks, proper observance of the plumbing code would have prevented the disease outbreaks.

The most celebrated outbreak of disease attributable to plumbing in recent years is the one of amebic dysentery which centered in two hotels in Chicago and spread to every state in the Union. It caused nearly a thousand cases and 58 deaths, and was largely attributed to plumbing defects by a committee of celebrated experts, which made a careful investigation in January, 1934, the report being published in the Journal of the American Medical Association of February 3, 1934.

This is an unusual epidemic, partly because it is the first time, as far as I know, where an outbreak of this disease in a civilian population has been shown to be principally caused by water contamination. Also, the measures employed to find and investigate the cases and the extent and thoroughness of the study of the plumbing in the hotels are extraordinary.

A summary has appeared in the October 26, 1934, number of the Public Health Reports, published by the United States Public Health Service, so, instead of giving a description here, I will merely state the causes.

The epidemiological studies indicate that the amebic

(Continued on Page 134)

Rolland J. Hamilton

Air Conditioning *will reach* Public *through* Heating Trade

Says Rolland J. Hamilton, President, American Radiator Company, in an exclusive interview

A VERY significant service for the heating trade has been performed within the past year or so by the many promotional activities carried on in the interests of home modernization. I refer to the educational value of the publicity given to modern heating. The amazingly widespread lack of public appreciation as to what constitutes modern heating, the ignorance of what real comfort in heating can be, has long remained one of the most baffling obstacles the heating contractor and manufacturer have had to face. Much progress still remains to be made in this direction, but a substantial educational gain can certainly be recorded for the past year.

INDUSTRY WILL BE BENEFITTED

The increasingly economical production of heating equipment designed to serve best the needs of human comfort and health will mark the future of the heating industry. But hand in hand with this development must be waged an unceasing educational campaign, to keep the public abreast of developments. As people learn to expect more from their heating and to demand more in comfort and convenience the heating industry will be correspondingly benefitted.

Progress in heating for the next few years at least will largely take the shape of mechanical improvements and accessories designed to make the heating system more and more automatic and efficient in performance. These improvements will take the form, for instance, of controlled air circulation, filtration, humidification and cooling. They will not only be incorporated in new heating products, but many of them will be applicable to the existing systems, providing new ways for the heating contractor to reach the large and important market of old homes.

This increasingly evident trend toward mechanical heating apparatus provides both a new business impetus for the heating trade and at the same time a challenge to its initiative and enterprise. For although the new mechanics of heating will be kept simple by the manufacturers it will nevertheless be necessary for the contractor to acquire a thorough understanding of the new features of heating in order to sell, install and service them.

His selling ability will also be called more and more into play. For the public will demand to be informed, advised and won over to the advantages to be derived from progressive methods of heating.

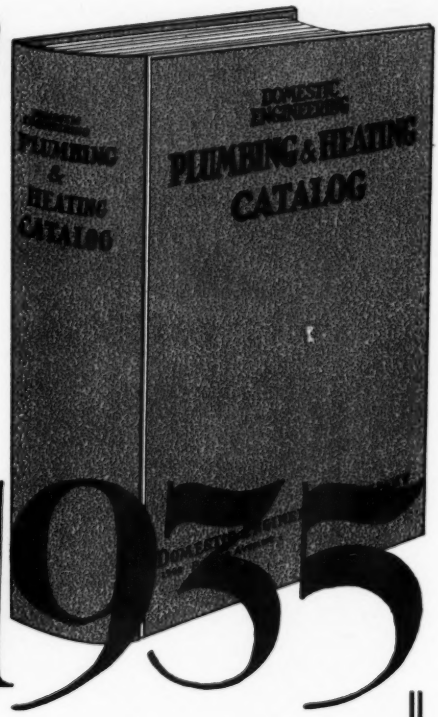
The heating trade have served the public well throughout many years, and probably they command the confidence of their customers as few classes of business men do. This confidence gives them a tremendous advantage now, when they stand on the threshold of a different era in heating, for the public will call on them for the new types of equipment. They must, however, be able to serve their clients with the newly developed forms of heating apparatus as capably as they served them with the old, if they are to retain the business within their own ranks.

Air conditioning, with its close relation to heating, is an interesting subject to be considered in this connection. "What effect will the air conditioning business have upon the heating industry?" everyone is asking. And so alive and growing is the interest of the public in air conditioning that the question deserves serious consideration and reply.

In my opinion, air conditioning with its great contribution to human health and comfort will be a universally demanded service throughout the residential and office building field, as well as in the commercial and industrial fields. Along with heating, the public is going to demand air conditioning. And because efficient air con-

(Continued on Page 156)

New!



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QUESTIONS AND ANSWERS!

1—

To the Editor:

I should like to take advantage of your proferred engineering service in the solution of a problem in sewage disposal and septic tanks. The problem is that of a building with a toilet room of eight fixtures in the basement about 5 ft. below the ground level. As this particular city has no central sewage disposal system, it was necessary to install a septic tank. The top of the septic tank was installed below the bottom of the lowest outlet from the basement toilet room. Overflow from a septic tank is conducted into a cesspool and a leaching well.

During the spring rains the ground water rises above the top of the septic tank and interferes with the proper discharge. Toilet rooms above the basement level are

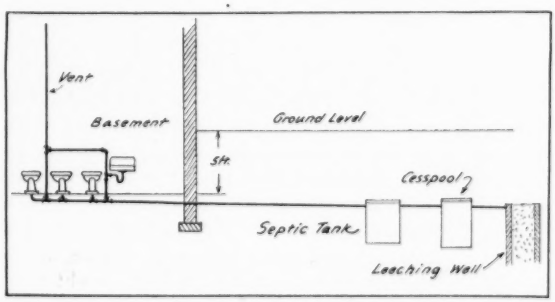


Fig. 1

not affected by this ground water, but it has been found that urinals and toilet bowl traps have backed up over the floor.

It is not possible to carry the discharge from the leaching well cesspool and septice tank further because of the limitation of the property lines and the refusal of the local board of health to grant permission to construct private sewers.

It would appear that the installation of a sewage ejector would merely increase the ground water level around the foundation walls and perhaps only partially relieve the condition. Can you offer any suggestion as to the proper handling of sewage from this basement room or is it advisable to abandon the toilet room and relocate at a higher elevation? L. C. H.

1. *Toilets are five feet below the ground level and the discharge is into a septic tank. Spring rains cause water in ground to rise above the top of the tank. The engineer answering this question says he does not know that he has ever heard of a plumbing system operating under worse conditions.*

2. *Three out of every six strokes of this reader's water supply pump cause pounding. A novel method of determining the source of the pounding is suggested.*

3. *This question centers about noise in a steam heating plant. Reader has been called upon to repair another man's job.*

To the Reader:

We do not know that we have ever heard of a plumbing system operating under worse conditions of discharge. We say this in the belief that our Fig. 1 shows somewhat the conditions that exist in this installation according to the provisions in your letter.

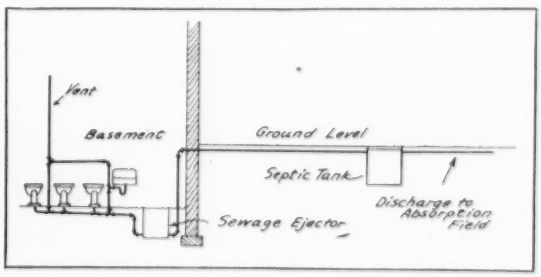


Fig. 2

An important point concerns the method of disposing of the sewage from the upper floors. The inquiry states that upper toilet rooms are not affected by the ground water, and also suggests relocating the basement toilet room at a higher elevation. On the basis of these two considerations we would by all means advise discharging the basement fixtures into a sewage ejector and by means

of the ejector lift the sewage into the gravity system serving the upper floors. However, the strength of this recommendation is reduced by the statement made in the inquiry, that use of a sewage ejector "would merely increase the ground water level around the foundation walls, and only partially relieve the condition."

No septic tank could possibly be effective under the conditions that exist. Every time the ground water rises above the top of the septic tank, its bacterial effectiveness will be ruined, not only during the flood period, but for something like three weeks longer, or until the bacteria in the tank have had sufficient time to build up. Moreover, the cesspool and leeching well become nothing more than a foul nuisance, not only when flood conditions exist, but even under normal conditions, for bacterial action does not take place in soil in any effective manner, at such a depth below the surface. Altogether the disposal plant must be just about as bad as possible.

The correspondent says the board of health will not permit the construction of a private sewer. It seems to us that this might offer a possible solution of the trouble.

Without knowing some of the important features, which we really should know before making an intelligent recommendation, the best advice that we can offer is the following: Discharge the basement fixtures into a sewage ejector and raise the sewage by means of the ejector into a line running to the septic tank. In this method it will be observed that the septic tank is set at the ground level, the location that it should have. It is very likely that the surface soil will be sufficiently light to take care of the effluent from the septic tank by means of a system of underground tiles, allowing the cesspool and leeching well to be scrapped. This method we show in Fig. 2. Otherwise the only alternative is to relocate the basement toilet room on an upper floor, as suggested in the inquiry.

2—

TO THE EDITOR:

Can you assist me with a problem that I have on my hands? It has to do with an electric pump which pumps from a well and into a pneumatic tank as shown in Fig 1? The difficulty consists of so-called pounding of the pump every three out of six strokes. I have learned since I installed the pump that I should not have dropped, or formed an air pocket, between the pump and the tank but the pipe is all beneath the basement floor now and difficult to change; if you can suggest anything to overcome the severe pounding I should appreciate it.

Penn. B. N. H.

TO THE READER:

After studying your sketch, Fig. 3, carefully we are of the opinion that the drop in the pipe has nothing to do with the pounding which you say is produced. The reason we incline to this opinion is that the dropping of the pipe under the floor could only permit a collection of air in the high portion between the well and the safety valve. As soon as this air—if it collects at all which we very much doubt—becomes sufficient to interfere with the water flow, the force of the water with the pump behind it will drive the air down through the low pipe and up into the tank. This could be determined by you very easily by placing a valve on the lower end of the air chamber and releasing any air collected in the pipe through the means of this valve. If this stops the pounding then the air must be the cause of the trouble but we are sure that this will not stop the trouble.

It is a great deal more likely that the difficulty is caused by a check valve which sticks occasionally and does not work smoothly, or by the plunger sticking in the pipe, or from some other cause not evident from the sketch submitted. We would suggest that you take a short piece of wood, say a foot or two long, and about an inch square, and hold one end in your teeth while you go around and press the other end against the various parts of the equipment. The wood will transmit the noise

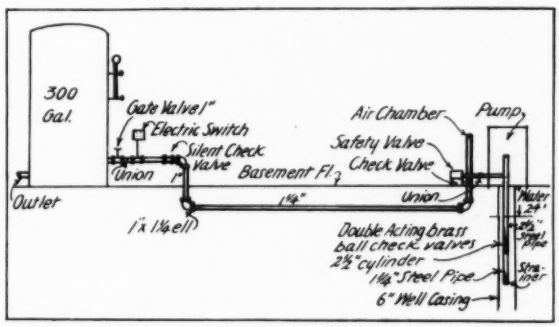


Fig. 3

through your teeth somewhat in the manner of an amplifier and where the noise is loudest generally will be found to be the point where the noise is produced.

After you have once settled on where the noise is being produced it narrows down the field of investigation considerably. It may show up, for example, that the noise is loudest right at the motor frame which may indicate a burned out field; or it may be loudest in the transmission indicating some misalignment of the gears; or it may be loudest in the pump pipe indicating something wrong with the pump.

After having localized the sound, the next step is to find the cause which may, or may not, be located at the same point; for example a sticking piston might make no noise where it sticks but might result in the production of noise in the gearing on the pump. If there is a good pump man in your locality who can see the pump it is possible he might be able to tell you by the nature of the noise, and its period of occurrence, just where the trouble probably will be found.

To be perfectly frank with you, noise difficulties often are very hard to run down even when one can see the equipment and hear the sound; when one cannot see the job and is unable to hear the noise, the very best that can be done is to make a few suggestions with the hope that they may be of assistance to you in locating the difficulty.

3—

TO THE EDITOR:

I am repairing a steam heating plant installed in a good-sized building by another party and I would like

COAST TO COAST APPROVAL!

DISTRICT OF COLUMBIA

"Investigation has shown that your SLOCO Vacuum Breaker, as per sample submitted here for test, does provide a full area air intake. Its construction seems to be such that its getting out of order need not be anticipated. Under the circumstances, the Inspectors in this office have been instructed to pass it when installed with any make or type of flush valve previously approved by this office and without any additional check or other protection."

A. R. McGonegal, Insp. of Plbg., D. C.

PASADENA, CAL.

"The Board met at the test laboratory in the Municipal Light Plant at Glenarm Street to test the Star Flush Valve with Sloan Integral Vacuum Breaker as requested by the Sloan Valve Company in its application now on file with the Board . . . . . Findings:

"As a result of these tests the Board voted unanimously that in its opinion this flush valve is not liable to cause water pollution through syphonage.

"The Board voted unanimously to grant a Certificate of Unlimited Approval, in accordance with Section 1A of Ordinance No. 2215, to the Sloan Valve Company for its Star Flush Valve with Sloan Integral Vacuum Breaker."

Walter Putnam, Secretary

DETROIT, MICH.

"Your improved Sloan valve vacuum breaker has been examined and approved by the Detroit Board of Health and the Department of Buildings and Safety Engineering for water closet installations in this city."

Jos. P. Wolff, Commissioner

SANTA ANNA, CAL.

"This Flushometer now meets the requirements demanded by this department, and can be used unrestricted. However, should we find at any future time that this appliance is not performing the duty of preventing back-syphonage we will be compelled to revoke the permission here granted.

"We again corroborate our former permission to use V-60-A as an addition to any flush valves now in use."

H. O. Crone, Plumbing Inspector

ATLANTA, GA.

"After having examined the Sloan Vacuum Breaker made to be used in connection with all Flush Valves, I think it is very advisable to use this Air Breaker with each Valve installed."

E. G. Quarles, Chief Plumbing Inspector

JACKSONVILLE, FLA.

"To All Licensed Master Plumbers of City of Jacksonville

"On and after January 1, 1935, all flush valves installed in connection with section 28 of plumbing code shall be equipped with a vacuum breaker "SLOCO" pattern or equal."

Jno. Fowler, Building Commissioner

WATERLOO, IA.

"In compliance to the request in your letter of December 17th, permit me to say, that I have given your vacuum breaker demonstrated by you at my office considerable thought and study, and hereby give my unqualified approval of same."

M. W. H. Berg, Plumbing Inspector

PHILADELPHIA, PA.

"For your information, I would say that we have examined your Sloan Vacuum Breaker very thoroughly, and find that it complies with the requirements of our code. We can see no objection to its use in Philadelphia."

Winfield S. Reed, Supervisor of Plbg.

ST. PETERSBURG, FLA.

"This office has this day inspected your Sloco Vacuum Breaker which is designed for installation on all flush valve equipment as well as certain hospital fixtures having submerged inlet, and we find that this Breaker efficiently and simply prevents back-syphonage without any complicated mechanism.

"Pending any new developments in this problem of back-syphonage, this office will be glad to approve your Sloco Vacuum Breaker for any new installation of this kind."

J. I. Lundquist, Building Inspector

STATE OF COLORADO

"After careful inspection and investigation of your Sloan Vacuum Breaker with one inch air intake, I am very glad to say that I approve the same and in my opinion it is a very satisfactory arrangement to take care of the condition for which it is intended, viz.: the positive break between a water closet and water supply line.

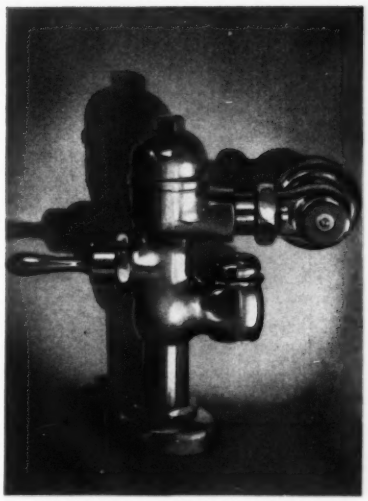
"While it is not as yet compulsory to install this valve according to our State Plumbing Code, we are in hopes that at some future time this provision may be put in force."

Irving A. Fuller, State Plbg. Insp.

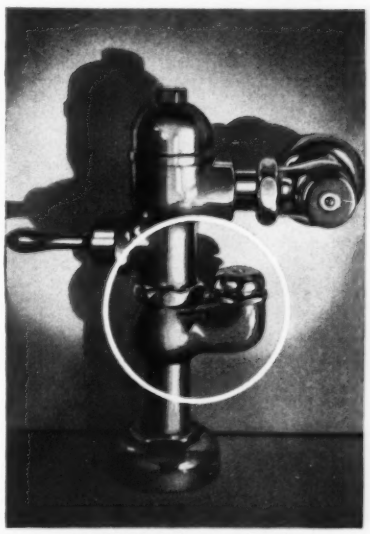
COUNCIL BLUFFS, IA.

"I wish to acknowledge my approval of your V60A Vacuum Breaker that you demonstrated to me a short time ago."

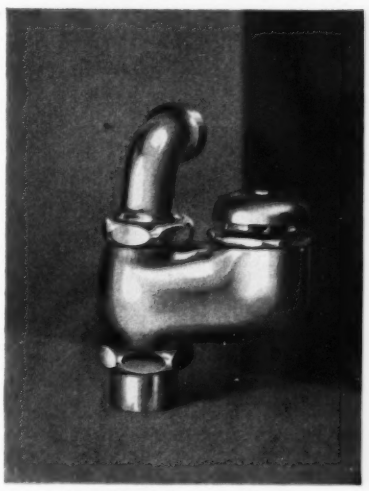
Thos. Dustrup, Plumbing Inspector



Integral SLOAN Vacuum Breaker



V-60 SLOAN Vacuum Breaker



V-80 SLOAN Vacuum Breaker

SLOAN VALVE CO » CHICAGO

to know the cause of the radiators cracking when the steam starts to come into them. In some places in the building steam coils have been used under seats where there was no room for radiators and these coils when the steam comes in crack like the report of a gun. Would the air valves have anything to do with it? Please let me know what can be done to rectify the matter and stop the noise.

Penn. D. J.

TO THE READER:

Your letter is so very indefinite that we can do but little more than to reply in generalities; you do not tell us what kind of a steam system it is, how the piping is arranged, what pressure is used or how the steam to the radiators is controlled. All of these may have a bearing on the matter of noise.

Noise in steam systems usually may be the result of one of two causes, viz., the steam itself or else the water of condensation. Sometimes the retention of air at certain points in the return may cause the return to back up and produce water hammer in its efforts to get back to the boiler. In other cases the return may be sized too small or may be partially obstructed by sediment and rust so that the passage of the water is restricted.

The most frequent cause of noise, however, is the sudden condensing of the steam entering a cold pipe system or radiator which is caused by the cold metal acting on the steam instantaneously and resulting in a sudden condensing of the gas leaving a vacuum in its place into which air, water and steam rush from every side and meet with a sharp report. This is not caused by the air valves or anything in connection with the system but will occur in any steam system when the steam is shot into cold portions. On the other hand, this noise is aggravated by high steam pressures and sudden heating whereas it may be lessened by using low steam pressures and letting the steam enter the cold piping and radiators slowly. It is for this reason that vapor systems seldom are troubled with noise although it is a fact that these systems usually have carefully graded returns and that the air goes along with the return and is vented through an ample outlet so that no trouble with air relief is experienced.

Questions for Readers to Answer

The following question was asked in the December issue and the following answer is by a reader:

A hot water radiator heats a room on a zero day to 60 deg. Fahr. The water in this case leaves the boiler at 180 deg. Fahr. and returns at 160 deg. Fahr. How much must the water temperature be increased to bring the room up to 70 deg. Fahr. all other conditions remaining the same?

IF the water leaves the boiler at 180 deg. Fahr. and returns at 160 deg. Fahr. then the average temperature in the radiator is

(180 deg. Fahr. plus 160 deg. Fahr.) / 2 or 170 deg. Fahr.

and the average temperature difference between the radiator and the room is

170 deg. Fahr.—60 deg. Fahr. or 110 degrees.

and with this 110 degrees average temperature difference between the water in the radiator and the air in the room the radiator is able to hold 60 deg. Fahr. in the room when it is zero outside.

If all other conditions remain the same and the room temperature must be increased to 70 deg. Fahr. the additional heat required will be

70 deg. Fahr. / 60 deg. Fahr. or 117 per cent of the original amount

of heat supplied. Under this condition the temperature difference between the water in the radiator and the air in the room also must be increased 17 per cent to supply the same amount of additional heat. Therefore the temperature difference between the water in the radiator and the air in the room must be

110 deg. Fahr. x 117 per cent or 128.7 deg. Fahr.

In this case the room already is at 70 deg. Fahr. so the temperature (average) of the water flowing through the radiator must be increased to

128.7 deg. Fahr. plus 70 deg. Fahr. or 198.7 deg. Fahr.

Since the system is now supplying 17 per cent more heat than it was before the average temperature in the radiator was raised from 170 deg. Fahr. to 198.7 deg. Fahr. the difference between the temperature of the water leaving the boiler and the average temperature of the water in the radiator also must be increased 17 per cent, in the first instance this difference was

180 deg. Fahr. — 170 deg. Fahr. or 10 degrees

while, after the water temperature is raised to 198.7 deg. Fahr. in the radiator, the temperature difference between the average temperature in the radiator and the water leaving the boiler will be

10 degrees x 117 per cent or 11.7 degrees

thus making the temperature leaving the boiler

198.7 deg. Fahr. plus 11.7 degrees or 210.4 deg. Fahr.

while the temperature of the return water will also be 11.7 degrees below the average temperature in the radiator or

198.7 deg. Fahr.—11.7 degrees or 187 deg. Fahr.

Note—The above neglects the slight acceleration which will occur in the circulation when the water is heated to the higher temperature the effect of which would be to make the temperature leaving the boiler slightly lower than indicated by the calculations and the temperature of the return water slightly higher than the figures show.

How Would You Answer This Question?

Which will carry off more water, a 6 in. drainage line pitched ¼ in. per ft. or an 8 in. drainage line pitched ⅛ in. per ft.?

Answers based upon your experience, suitable, will be paid for and published in the April issue.

Automatic Heat *and* Air Conditioning

An electric motor with a rating of about one flea power has been developed. See Page 75. While this item, interesting from a news angle, has no immediate application, the article on electrical facts for A. H. and A. C. dealers, which accompanies it, is intensely practical.

Sell Comfort — and Automatic Heat and Air Conditioning Sales will take care of themselves

Burner dealers are closing heating unit sales on the basis of this quick installation factor

. . . "You'll be only a few hours without heat!"

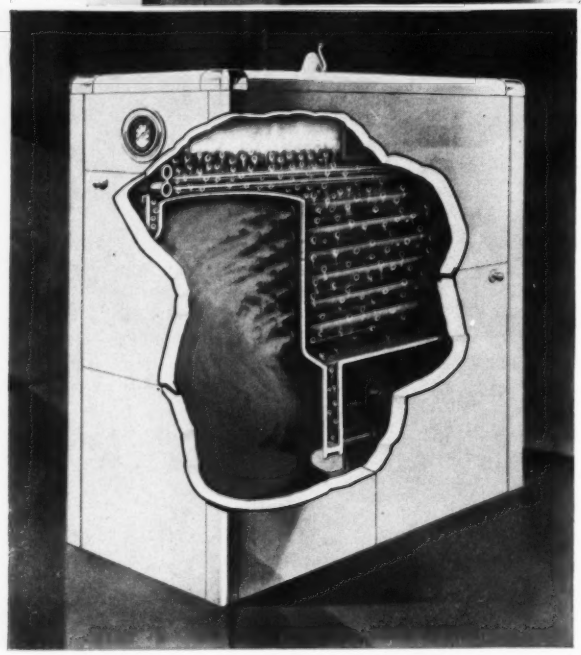
"I can give you a heating unit consisting of my burner, and this modern steel boiler designed to work with it, *and have steam up again in jig time!*"

"With this combination, it's merely a matter of connecting up a few pipes. This Fitzgibbons Steel Boiler is delivered right at your door **all in one piece.** It is built of rust-resistant copper-steel plates and tubes, with all joints electrically welded. No time is lost with this boiler in juggling heavy sections, caulking joints to make them water-tight and steam-tight—almost building the boiler and testing it in your cellar. All the building and testing has been done at the Fitzgibbons factory.

"Then we slip my burner into place, connect it up, set up the beautifully enameled jacket which covers both burner and boiler—and throw the switch.

"As this boiler is made in fourteen sizes, I can give you a unit of exactly the capacity your home needs. Moreover, this unit will give you all the **hot water** you need, all the year round, **without a storage tank** and with no visible attachments.

"With my burner and this boiler you have a unit that will show you the real economy, comfort and convenience of **modern automatic oil heat.**"



HAVE YOU WRITTEN FOR THE NEW OIL-EIGHTY AUTOMATIC CATALOG?

If not, write for Catalog "D" —and get the full details of this modern oil-burning boiler.

Fitzgibbons Boiler Company, Inc.

GENERAL OFFICES: 570 SEVENTH AVE., NEW YORK, N. Y.
Works: OSWEGO, N. Y.
BRANCHES AND REPRESENTATIVES IN PRINCIPAL CITIES

FITZGIBBONS OIL-EIGHTY AUTOMATIC

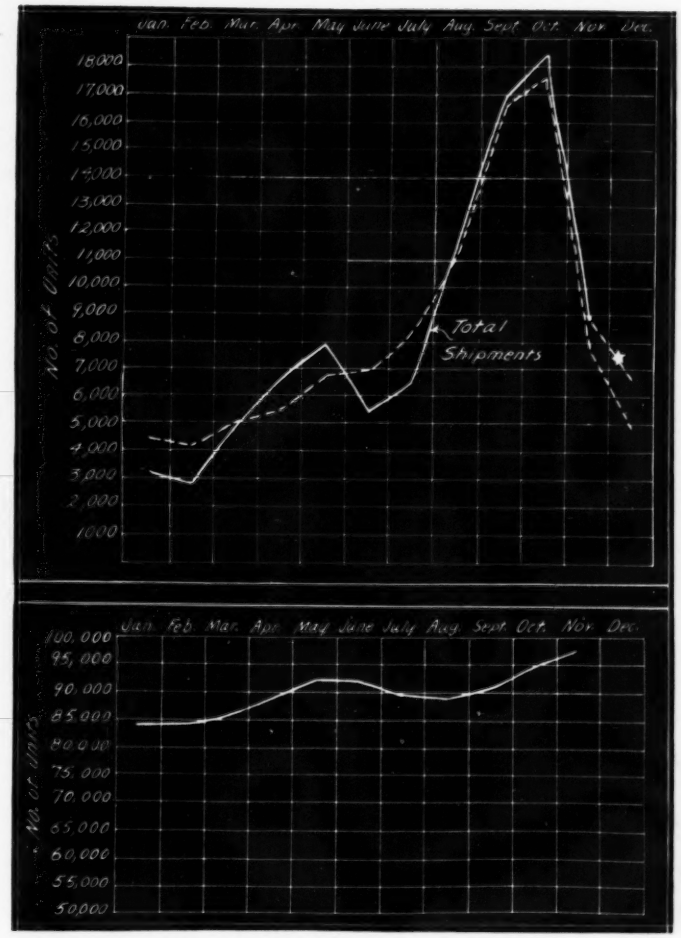


Fig. 1—The top set of curves show the actual 1934 oil burner shipments (solid line) and the seasonal trend for last five years (dotted line). Fig. 2—Immediately above, moving total curve shows general trend of oil burner sales

Oil Sales Curves Respond to Sales Efforts

By

The Marketing Staff

of

Automatic Heat and Air Conditioning

A STUDY of the trend in oil burner shipments in 1934 brings out some interesting facts. In the chart marked Fig. 1, is shown actual shipments and by a dotted line how shipments would have occurred if the oil burner business in 1934 had followed the average seasonal trend of the past five years. January and February were much below normal, March about normal, April and May considerably above normal, June and July much below, August back to normal and the balance of the year was climbing steadily ahead of the normal trend.

The cause of such variations can never, of course, be definitely determined. However, the following may be some suggestions:

The poor start in January and February might be explained in two ways. First, as a direct cause of the depression, many oil burner manufacturers at the start of 1934 were still hesitant about starting aggressive sales programs until they had an opportunity to see what actually happened to general business for the first month or so. And second, many manufacturers were still waiting for the oil burner show before starting active sales campaigns.

Early in March, however, a reasonably good business year in 1934 seemed assured and the oil burner show was over. The industry, therefore, shot the works, as it were, and was very pleasantly surprised with an unusually large volume of business in April and May.

(Continued on Page 102)

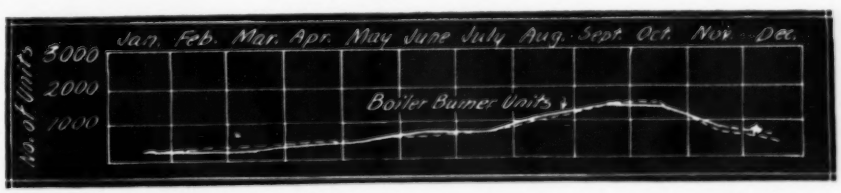


Fig. 3—Solid curve shows shipments for boiler burner units for 1934 and dotted curve shows trend

Quick Service

Oil heating continues to be an engineering as well as selling proposition. A knowledge of general heating is the foundation of this contractor-dealer's successful appliance merchandising work. Servicing also is made to pay

FOR those who have avoided oil burner selling from fear of service requirements it may come as welcome news to learn that Baerenklau & Co., one of the most prominent heating and oil burner dealers for many years, in Brooklyn, New York, give greater credit to their service department as a means of securing orders for new burners than to their regular sales force. There continues to be some little cold canvassing by this organization, but by far the greater majority of selling calls are made on the 2,000 oil burner customers already sold and on the 5,000 other heating customers accumulated by them over the last 37 years.

It goes without saying that any dealer that has in use some 2,000 pieces of electrical equipment must have a service department. There are two ways of regarding service departments. One way is to consider it as a necessary evil. Another way is to put the department to work to produce new business. Some dealers mistakenly adopt the former attitude. Baerenklau & Co. exist as a living example of those who have secured substantial dividends from customer service.

"In this day of low prices and keen competition, something more than a verbally expressed superiority of one burner over any other offered is necessary to get the name on the dotted line," reminds Albert G. Baerenklau, manager of the oil burner division. All of us know that the amount of fuel the owner burns depends largely upon our service man," he continued, adding, "The life of the equipment is largely in the same man's hands. If our salesmen point this out to prospects and show how our organization can and does function to save owners many dollars in operating cost as well as maintenance then they have a definite advantage over salesmen who merely promise service without special emphasis."

Baerenklau & Co. have grown steadily since 1898 when the firm was founded by the grandfather of the present partners, Henry A. and Albert G. Business confidence is a difficult thing to define but the good name here is deemed the most valuable asset available in seeking new business. Salesmen out after oil burner orders capitalize on the situation in a way seldom surpassed in effectiveness.

Fig. 1—The illustration at the top of this page shows one of the four Baerenklau fuel oil trucks which also advertises the heating and oil burner phase of this contractor-dealer's business

and Sound Engineering Sell Oil Burner Jobs

There is a personnel of eight in this heating contractor's service department. At least one capable burner expert is on duty all night, Sundays and Holidays. The office, like a lighthouse, is never closed. During the daytime response to customer calls is made within one hour after receipt. A customer never has a chance to complain more than once.

In organizing such departments it is suggested by Mr. Baerenklau that the ideal oil burner trouble man is one who knows boilers, heating systems, fuel consumption, combustion and controls as well as the mechanical features of the burners being handled. The department head should be a good organizer who can select and train men so that they are competent, neat in appearance, trustworthy and able to re-sell the burner to the owner whenever the chance arises.

Routing to prevent loss of time and doubling of calls is another feature. Thus when a service request is received at Baerenklau's it is noted on a special form known here as a "call sheet." Each service expert is given a single call at a time. When completed, he telephones for additional work. The trouble shooter carries a book of "service tickets" so that he can write down the time he receives the call, the time he starts the work, the time he finishes and the total number of hours spent on each job.

In the center of the form, or "ticket" is a space for listing the parts used and at the bottom is a line for the customer's signature. As the forms are in triplicate, one copy is given to the customer. At the end of the day a service clerk checks the tickets against the calls. A sample of such "Ticket" is shown here.

COMPLETE CARD INDEX SYSTEM

On each job there is also at the Baerenklau office a complete card index system showing all details of the building, the heating plant system, the burner, repairs, etc. Some customers are on an annual contract, while others pay for individual service jobs. The former receive regular monthly inspections, the latter receive free summer overhauling during the first year of ownership. Then they pay according to the cost for calls as they may occur.

When summer overhauls are made, there is a charge of about $11.00 for the work. The average amount received from non-contract customers runs from $4 to $7 yearly. Following the summer overhauling all burners are delivered in cartons, and stored at customers until fall when the burner is placed in service again by the service department, to complete the order.

"When heating contractors have a satisfactory customer-help division as a part of their oil burner merchandising," says Albert G. Baerenklau, "their burner profits accumulate, as years pass, without feverish effort. Without good service, appliance selling assumes a transient aspect and every new prospect must be pursued and every new order laboriously obtained. Gather a substantial group of satisfied customers and one can almost subsist on their help alone without high pressure selling."

According to this Brooklyn dealer, also, it is the development of a good service department that staves off department store and direct-to-you

SERVICE INVOICE

BAERENKLAU & COMPANY
740 JAMAICA AVE., BROOKLYN, N. Y.
FACTORY DISTRIBUTORS KINGS AND QUEENS COUNTIES
A-B-C OIL BURNER

TELEPHONE APPLEGATE 7-2100

Owner _____ DATE _____
Job Address _____
Owner's Address _____ Nº 23250
Terms: NET CASH H☐ E☐

CALL REC'D	A.M. P.M.	STARTED	A.M. P.M.	SERVICE MAN		CHARGE
TRAVELING TIME		FINISHED	A.M. P.M.	LABOR		
1 MOTOR		PARTS USED				
2 FRAME						
3 OIL CONTAINER						
4 TRIP ASS'Y.						
5 OIL VALVE						
6 PILOT						
7 GAS VALVE						
8 BOILER CONTROL						
9 RELAY						
10 STACKSWITCH						
11 THERMOSTAT						
12 SUMMER CONTROL						
13 PUMP						
14 DRAFT						
15 OIL GAUGE						
16 HEARTH						
17 PIPING						
18 STRAINER					TOTAL	
19 MISCELLANEOUS						

I HAVE CAREFULLY READ THE ABOVE AND FIND IT TO BE CORRECT.
SIGNED _____

Fig. 2—At the left is one of the service tickets, a book of which each trouble shooter carries as a part of his regular equipment. Note place for the customer to place his signature and his O. K.

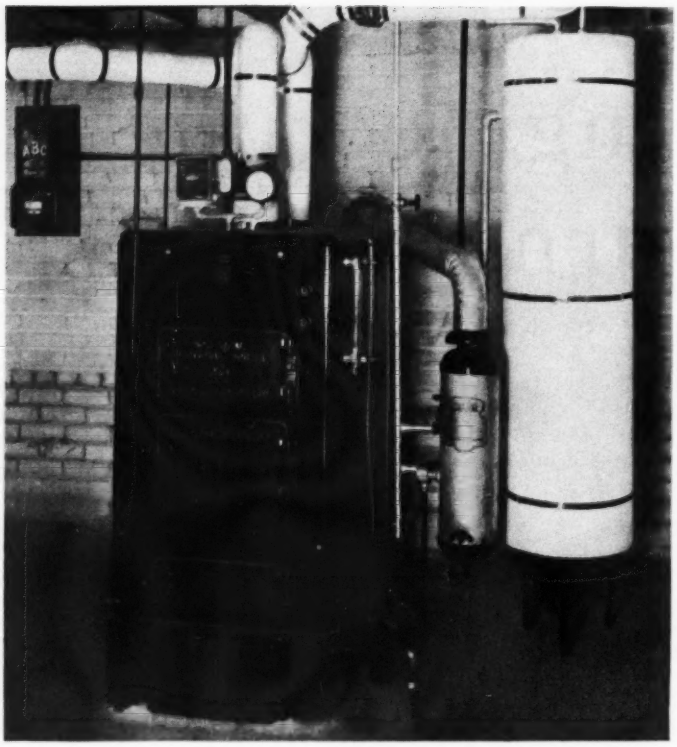


Fig. 3—This oil burner installation is typical of some of those made by the Baerenklau organization although the one shown actually was not installed by them

competition. Such dealers, as a rule, have no engineering force and are not prepared to give good service at times when such a service may be imperative. The average prospect knows this and, especially in suburban localities, where the great majority of burners are sold, they contact reliable heating contractors before they listen to the appeals of department store salespeople.

GENERAL HEATING IS FOUNDATION

It is the engineering and service phase also that has worked to the advantage of heating contractors in regard to combined burner-boiler units, emphasized Mr. Baerenklau. Oil heating continues to be an engineering as well as a selling proposition, he asserted. As his company handles considerable miscellaneous heating and air conditioning work in addition to oil burner selling, knowledge of general heating is the foundation of his successful appliance merchandising.

This feature is brought out in his handling of oil burner contracts secured by outside salesmen. In fact, this dealer does not accept all such contracts. Unless the engineering department has checked them thoroughly they are not put through for installation.

This refers to the selection of the burner, the types of controls, the type and size of the boiler or furnace to which they are to be connected, the ability of such plants to warm the buildings they serve, the condition of the heaters and like features. If prospects look good and salesmen request engineering advice, mechanical surveys are made preliminary to taking the order. Proposals then are checked. When preliminary surveys have not been made, then they must be made before materials are shipped and before mechanics are sent to install it.

It is this practice that has helped build the good reputation enjoyed by Baerenklau & Co. In their soliciting work salesmen use the service department as the most important part of their selling conversations with prospects. Quick attention to complaints has engendered friendship to the extent that salesmen, each allotted a certain number of users, keep calling on them for assistance in making sales to their neighbors, relatives and acquaintances.

This heating contractor also finds it helpful to have his name appear on burners along with the manufacturer's name. Interested observers who have been asked by customers to inspect their burners thus see the dealer's name and know whom to telephone when they, too, wish to purchase. It is Mr Baerenklau's experience that many such visitor-inspectors look at their friends' installations without comment, hesitating to commit themselves at the time as being more than casually interested. The dealer's nameplate, however, is stored in memory or jotted down at home until the psychological hour arrives when they themselves will purchase. Baerenklau's men frequently refer to burners handled as the "Baerenklau" burner, failing to mention other names that might confuse or suggest other dealers in other localities which they cover in their work.

To make sure that this dealer's 2,000 burner customers receive fair measure and good grade oil, four tank trucks were added at the beginning of the current season and delivery of fuel has become a regular and profitable department.

Believing that good floor displays are conducive to sound merchandising, there are to be seen on the ground floor of the two-story building owned and used entirely by Baerenklau, a complete display including a working boiler-burner mounted on a platform, knocked-down burners and controls, several burners and controls in a large window display, balanced-draft dampers, boiler feed controls, summer-winter hot water hookups and like materials dusted and rearranged daily. A large Neon electric sign hangs over the entrance.

Applications of Heat Transfer

Five general applications of heat transfer are encountered in heating and ventilating engineering. These are, (a) heat transmitted from the room or building to the outdoors through windows, walls, ceilings, floors and doors; (b) heat transmitted through or from the heating devices from the heating mediums to the rooms; (c) heat transmitted through insulation provided to decrease the heat transfer at points where heat is not required; (d) heat transfer from the burning fuel to the heating medium; and (e) heat transfer from the heating mediums to process liquids and materials.

Abstracts of A.S.H.V.E. Papers Presented at Buffalo

Variety of subjects discussed at winter meeting

"TESTS of Three Heating Systems in an Industrial Type of Building" is the title of one of the articles presented at the winter meeting, by G. L. Larson, D. W. Nelson and John James, all of Madison, Wisconsin. The paper points out that the manner in which heat is distributed in a heated space is known to have considerable influence on the cost of heating. Maintenance of a uniform desired temperature in the occupied zone and a minimum temperature above that zone is conducive to efficient heating. The present program was undertaken to determine the effectiveness of heating with three different systems. The tests were conducted in a 71 ft. by 182 ft. one-story saw-tooth structure attached to the Mechanical Engineering Building and which is occupied by the Heating and Ventilating Laboratory. The side walls are of brick and one end wall is of brick and stone. It is considered to represent the usual industrial building of this type.

CONCLUSIONS ON THREE SYSTEMS

The paper further points out that the following conclusions may be drawn as applying to the three heating systems and the conditions under which the tests were conducted in the Heating and Ventilating Laboratory:

1. For dual control with the day thermostat set at 70 deg. Fahr. for 11 hours and the night at 50 deg. Fahr. for 13 hours, the saving of steam over continuous control with the thermostat set at 70 deg. Fahr. for 24 hours was:
   - (*a*) For direct radiation 15 per cent and probably a much larger saving had sun intensities and wind velocities been equal;
   - (*b*) For suspended unit heaters with fan and steam control 30 per cent;
   - (*c*) For suspended unit heaters with fan control and continuous steam 25 per cent.
2. For dual control with the day thermostat set at 70 deg. Fahr. for 11 hours and the night at 60 deg. Fahr. for 13 hours, the saving of steam over continuous control with the thermostat set at 70 deg. Fahr. for 24 hours was:
   - (*a*) For suspended unit heaters with fan and steam control 24 per cent;
   - (*b*) For floor unit heaters, with mixing damper control, continuous steam and continuously running motors 16 per cent.
3. The saving of suspended unit heaters over direct radiation both operating on continuous control was something over 13.5 per cent, and might have been 20 per cent had sun and wind effects been equal.
4. The saving of suspended unit heaters over direct radiation both operating on dual control (70-50 deg. Fahr.) amounted to 25 per cent.
5. The saving of floor unit heaters over direct radiation both operating on continuous control was 9 per cent and would have been higher had sun and wind effects been equal.
6. The saving of steam of floor unit heaters over suspended unit heaters both operating on continuous control was 2.3 per cent.
7. The saving of steam of suspended unit heaters over floor unit heaters both operating on dual control (70-60 deg. Fahr.) amounted to 7 per cent.
8. The average temperature gradient for all days of tests for the three heating systems over the entire period of test resulted in a change of two-thirds of one per cent per foot of height above the 5 ft. level.

HEAT REQUIREMENTS OF BUILDINGS

The paper entitled "The Heat Requirements of Buildings," by J. H. Walker and G. H. Tuttle, both of Detroit, Michigan, was presented, according to the report, as a contribution to the work of the Technical Advisory Committee on Heat Losses from Buildings.

It was stated, the primary objective of the above-mentioned committee is to study and improve the methods of calculating heat losses for the design of heating systems. The question of the actual heat consumption of buildings is only incidentally related to that objective but is of much practical importance. Its value is in the prediction of heat consumption, rather than in the design of heating equipment, and it is of economic rather than technical significance. The figures which will be given have been obtained under practical conditions and are therefore influenced by uncontrollable factors, such as human habits, and by unmeasurable conditions, such as local vagaries of weather.

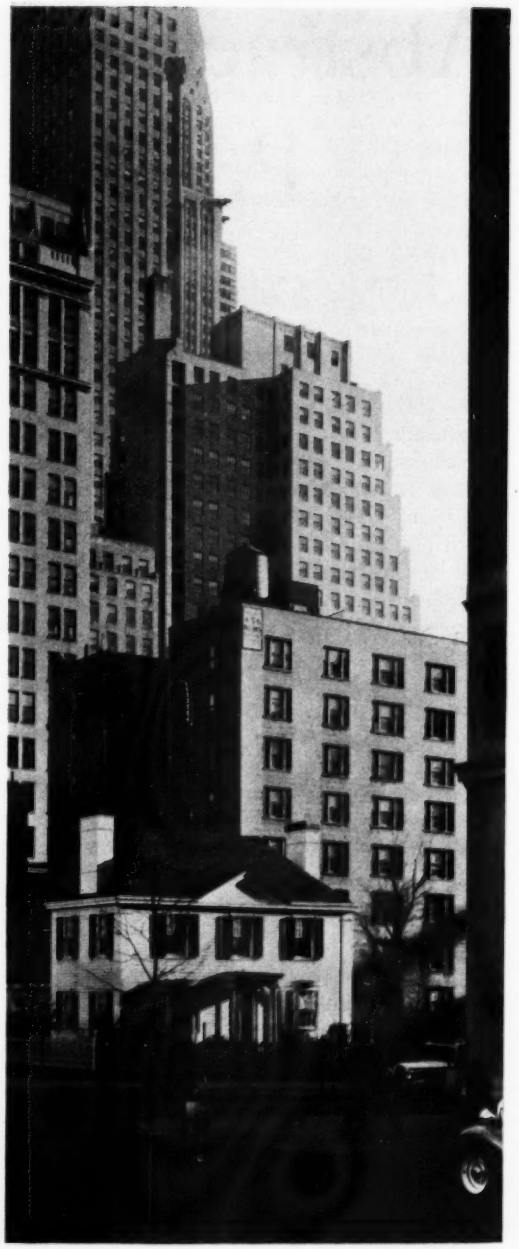
The paper gives the heat consumption of a large number of buildings on a degree-day basis and recommends, as a unit for comparison, the heat consumption per degree-day per thousand Btu. of calculated heat loss.

(Continued on Page 92)

The papers abstracted here were among those presented at the 41st Annual Meeting of the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS, Buffalo, N. Y., January, 1935.

A. H. and A. C.

A RESIDENCE known as The Little House has been built in New York City by the New York Committee of Better Homes in America in co-operation with the Columbia Broadcasting System. It is intended as an *educational demonstration of values* in house construction, interior decoration, furnishing, and small-property landscaping, suited to the needs of the average home owner with a moderate income. The Committee hopes that those who intend to build and furnish a house, or to remodel one they may already have, will find suggestions in this demonstration home to enable



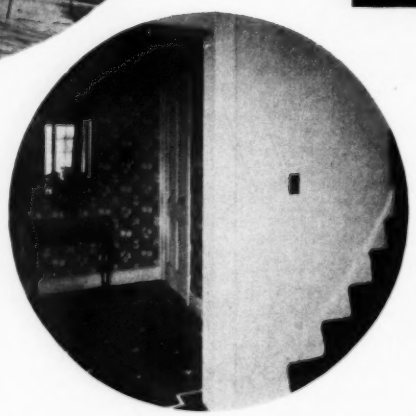


Fig. 1—The circle above shows one of the entrances to The Little House, from the outside

Fig. 2—The circle at the right shows the entrance hall with grille in floor

Fig. 3—The Little House nestles among the skyscrapers of New York City, at Park Avenue and 39th Street, shown at upper right

Fig. 4—At the lower right is a view of the master bath

Is Given the Spotlight

them to budget their expenditures wisely and obtain the best values in housing that their 1935 dollar will buy. It is significant that air conditioning has been included in this project.

The air conditioning system for this building was selected to provide as many features of air conditioning as would be consistent in a house which might be duplicated (outside New York City) for from six to eight thousand dollars.

The equipment is designed to purify, heat, circulate and humidify the air in the Little House in winter, and purify and circulate it in summer. The air is circulated through ducts by means of an electrically operated fan connected with a central oil-burning heating unit. During the heating season the unit also provides for domestic hot water which is delivered to a 40-gallon storage tank.

Warm air is introduced into the individual rooms by means of wall registers placed near the ceilings. At various points in the house such as the entrance hall and living room, the room air of lower temperature is taken away through floor registers, and is carried back to the heating unit where it is filtered, humidified and re-heated, before being recirculated. A certain amount of fresh air from outdoors also can be introduced by

(Continued on Page 106)

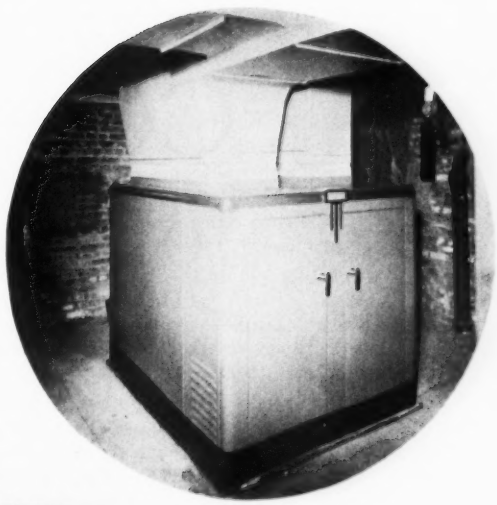


Fig. 5—Below is the kitchen in this very new and modern air conditioned home

Fig. 6—At the right is a view of the dining room. A control device is located on the wall to the right of the mirror

Fig. 7—The automatic heating and air conditioning equipment is illustrated in the above circle. Included in this basement, and made possible by cleanliness, is a space which is now called a rumpus room

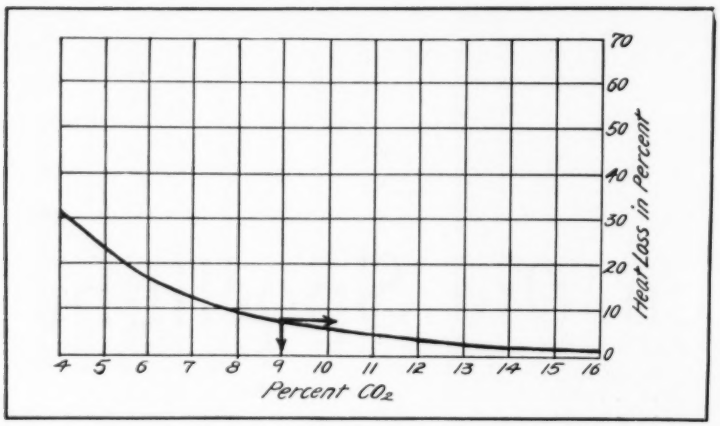


Fig. 1—Heat loss from excess air is the heat required to warm all of the air over and above that required for perfect combustion. It may be calculated from zero at 20.7 per cent CO_2 to 2 per cent CO_2. Best expected is 15 per cent

CO_2—What it is and for it in Your Burner

FROM time to time we hear something about flue gas analysis and how much or how little CO_2 the analysis showed. Occasionally someone remarks that you can't expect much more than 12 per cent and that if you have 12 per cent you are doing fairly well and all that can be expected. Another party chimes in and tells about a job with which he is familiar and where they are getting 14 per cent and sometimes 15 per cent. Now just what are these boys talking about and what do they prove with their percentages?

WHAT COMBUSITION ACTUALLY IS

To get a clear idea of the significance of CO_2 in the flue gas it must be understood that combustion merely consists of the uniting of the oxygen in the air with the carbon in the coal or oil and that this process is accompanied with the production of considerable heat, the whole process being covered by the broad term of "combustion." This uniting of the carbon and oxygen results in the formation of the "gases of combustion" which pass off through the boiler flues and the chimney and while passing through the boiler these gases impart a large portion of the heat which has been produced in the process to the heating surfaces of the boiler and thus the heat warms the water or goes farther and produces steam in accordance with the arrangement of the apparatus.

Now in the process of combustion it may be said that one particle of carbon has the characteristic of being able to unite with either one or two particles of oxygen; when it unites with one particle of oxygen it usually is because there are not two particles of oxygen available and the

When scientifically designed equipment is installed, it is unreasonable to expect it to give the best possible performance unless it is adjusted and operated in a scientific manner. The practical value of this to dealers in oil burning equipment is indicated in the following excerpt taken from a letter recently sent to us by a reader: "For some time I have handled oil burners and after having installed a great many, I feel that a flue gas analyzer and a draft gauge are necessary parts of oil burner installation equipments." This article tells how to analyze for CO_2

resultant gas is called carbon monoxide or CO while if there are two particles of oxygen available, then the carbon unites with twice as much oxygen and produces carbon dioxide or CO_2 as it commonly is termed.

Everyone is familiar with the fact that in order to have the fire burn the draughts must be open and air must be admitted to the fire in order to accelerate the combustion. Also, that in order to slow down the fire, the draughts must be closed and the supply of air to the fire must be stopped to a greater or less extent to prevent combustion going on too rapidly. When an almost unlimited amount of air is supplied to the fire, such as occurs with forced draft for example, the combustion is greatly accelerated and an intensely hot fire is produced. It does not follow, however, that the most heat will be developed *per pound of coal burned* under such conditions for it is more or less well known that, when a fire is "forced," the efficiency of the equipment is reduced.

Therefore, efficient combustion consists of supplying just sufficient air to the fire to secure the complete combustion of the carbon or—in another way of saying it—to allow each particle of carbon to unite with two particles of oxygen and to produce the greatest amount of CO_2. If less than this quantity of air is admitted incomplete combustion results and only a small amount of CO_2 is generated because there is not sufficient oxygen to satisfy all of the carbon capacity while if too much air is admitted CO_2 will be formed but it will be diluted by the excess of air to where the *percentage* of CO_2 in the flue gases will be reduced owing—not to the CO_2 not being formed—but to its constituting such a small part of the total gases when these total gases are enlarged by excess air.

Thus it will be seen that the percentage of CO_2 in any flue gas is simply an indicator of excess air and from this percentage the amount of excess air present may be determined. Well, says someone, suppose there is a little more air going through the fire than is really required, what of it?

Owing to the air consisting principally of nitrogen, which is termed an inert gas owing to the fact that it seldom does anything in particular outside of diluting the oxygen sufficiently so that human beings can breathe the air without actually burning themselves up, it follows that for every particle of oxygen required in the process of combustion there must pass through the fire a great many other particles of nitrogen simply because nitrogen and oxygen in air are so thoroughly mixed that it does not pay in our present state of advancement to try to separate the two. It follows from this that not only do we have to supply the necessary oxygen to a fire to get the desired combustion but we also have to supply with this oxygen a large volume of nitrogen and a small volume of the other gases normally contained in the average air.

How to Test Installations

ONE SOURCE OF HEAT LOSS

Inasmuch as the nitrogen itself does nothing to further combustion it follows that it travels along through the fire in the shape of a necessary evil even though not a desired one; incidentally, it must be heated to the temperature of the other gases and in turn imparts this heat to the heat absorbing surfaces of the boiler but it leaves the boiler at a much higher temperature than the temperature at which it entered. Thus, if the air in the boiler room is at 70 deg. Fahr. and the flue gases at the smoke outlet of the boiler are at 500 deg. Fahr., all of the nitrogen and other inert gases in the air have been raised in the boiler from 70 deg. Fahr. to 500 deg. Fahr. and the heat for this purpose must be supplied by the fire. This constitutes a loss of heat which is produced in the process of combustion.

Theoretically, the combustion of 1 lb. of pure carbon can be effected with the supplying of about 11½ lb. of air and the percentage of CO_2 under this condition is 20.7 per cent but this is ideal and never can be obtained in ordinary practice. About the best that can be expected is somewhere around 15 per cent CO_2 which is equivalent to having 16.1 lb. of air to a pound of coal and represents about 40 per cent excess air over that theoretically possible to fully consume the coal. These two conditions are illustrated in Figs. 2 and 3 where Fig. 2 is perfect combustion and Fig. 3 is the *best practical combustion* which can be expected.

Fair combustion may be taken as representing about 24.1 lb. of air to a pound of coal and under this condition the CO_2 will approximate 10 per cent and the percentage of excess air is about 110 per cent—see Fig. 4. *Poor combustion* is when the excess air reaches an unreasonable figure and rises to around 35 or 36 lb. of air per pound of fuel at which time the percentage of CO_2 falls to 5 per cent and the excess air rises to 320 per cent. This is shown graphically in Fig. 5.

From the above a curve may be plotted showing the pounds of air for any given amount of CO_2 as illustrated in Fig. 6 and a similar curve showing the per cent of excess air as shown in Fig. 7.

The heat loss from excess air is the heat required to warm the air over and above that required for perfect combustion from the entering room temperature up to the exit smoke outlet temperature and may be calculated from zero at 20.7 per cent CO_2 down to 2 per cent CO_2 which covers the entire range which will be encountered in any ordinary installation. This is shown graphically in Fig. 1 and it will be seen that it increases more rapidly in the lower percentages than it does in the higher ones. Thus the heat loss difference, say between 5 per cent and 6 per tent, is much greater than it is between 13 per cent and 14 per cent.

The efficiency of the boiler is directly affected by the amount of heat carried off in the flue gases so it will be seen that if an excessive flue gas loss exists the efficiency of the boiler is impaired to a considerable extent. Put another way, the fire generates just so much heat, and, if a large portion of this is lost up the chimney, a larger amount of fuel must be burned to deliver an equal amount of heat into the boiler.

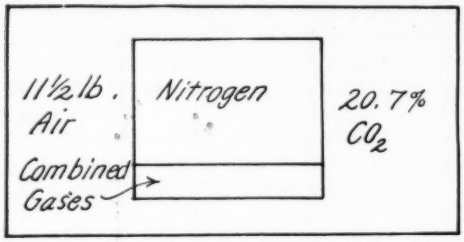


Fig. 2—Sketch indicates theoretically complete combustion wherein all of the oxygen is combined with carbon to form CO_2

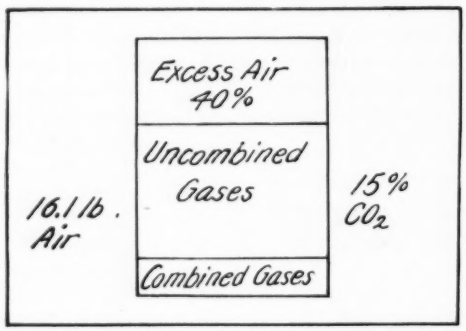


Fig. 3—This sketch shows the best practical combustion which can be expected. This allows for forty per cent excess air

Flue gas analysis usually is made by means of the Orsat or similar apparatus and may be of the continuous or intermittent type. In the continuous type the apparatus usually is installed in a permanent position on the boiler and periodic samples of gas are taken, the results being recorded on a chart so that an averaging of the chart will be an average of CO_2 readings taken at regular intervals throughout the day. The intermittent apparatus generally is of the portable type and may be taken around from boiler to boiler and from job to job, being set up for each test to be made and then taken down and removed to the next point of test as desired. For oil burner work the portable type of instrument undoubtedly would be used unless a large oil fired boiler such as is used in industrial work and for other purposes is under consideration.

The portable apparatus consists of a measuring burette, three absorption pipettes, a leveling bottle and a header all constructed of glass and arranged as shown in Fig. 8. The measuring burette most frequently contains 100 cubic centimeters, and is graduated into 100 units, each unit being graduated into fifths; this generally is enclosed in a water jacket to prevent sudden

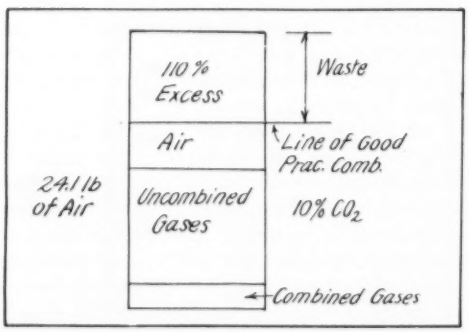


Fig. 4—Here is a diagram indicating fair combustion which results in producing 10 per cent CO_2

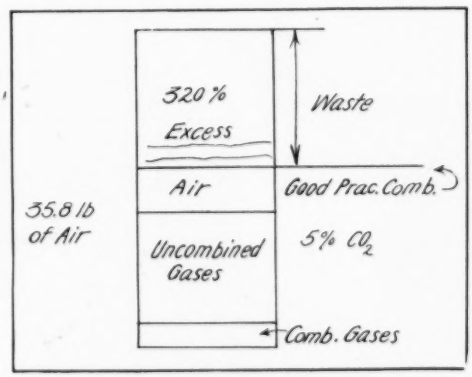


Fig. 5—Graphical representation of poor combustion which handles 320 per cent excess air and produces only 5 per cent CO_2

(Continued on Page 104)

TROUBLE

Since automatic heat and air conditioning equipments are controlled by electrical devices and wiring, it pays to know where electrical trouble may occur

THE owner of this job reported that his air circulating fan in his air conditioning system had been running continuously for about 24 hours and that he was unable to stop it except by opening the main switch, which also stopped the oil burner. Mr. Barker, the contractor and I visited this job today.

When we arrived the oil burner was idle, having been stopped by the room thermostat, but the fan was running as it had been doing for a long time. Upon inspecting it, I found the wiring to be 110 volt, single phase, alternating current, with one wire grounded. When I looked at the wiring of the bonnet thermostat which starts and stops the motor, I found the thermostat, which was a single pole instrument, wired in the white lead, which was the grounded one, when it should have been on the black or ungrounded lead. Then I inspected the white lead between the thermostat and the motor, when the cover from the conduit on the motor was removed, I discovered that the slight vibration of the motor had worn off the insulation from a part of the white wire and that the bare wire was touching the motor frame. As soon as I moved this wire so that the bare spot did not touch the motor frame, the motor stopped.

I called the electrician and asked him to tape up the damaged white wire and also, in order to prevent a recurrence of this trouble and to correct the improper wiring, I requested that he change the wiring of the bonnet thermostat by wiring it in the black or ungrounded leads.

Respectfully submitted,

A. J. Fletcher.

EXPLANATION

The simple matter of grounding incorrectly, the circulating fan motor, caused trouble here

IN many localities, grounded, 110 volt, single phase, alternating current systems are used. This system has the usual two wires, but one is black and one is white, the black one being the "hot" or ungrounded side, while the white one is the "dead" or grounded side. The white wire is connected to the earth by a wire as shown in Fig. 1 and consequently is said to be grounded.

In such systems single pole switches are frequently used. They are called single pole because they are installed in only one line, which should be the black one.

Fig. 1 shows what happened on the above job. The solid arrows show the path of the electrical current when the bonnet thermostat was closed and before the bare spot developed on the white wire. It will be noted that the current passed through the motor windings when the bonnet thermostat was closed, but not when it was open. Thus the thermostat started and stopped the motor.

The broken arrows show the path of the current after the bare spot developed on the white wire. The current passed from the black wire through the motor and then to the earth and back to the white wire whether the thermostat was open or closed. This explains why the motor ran continuously and why it stopped when the bare spot was taped and the thermostat was open.

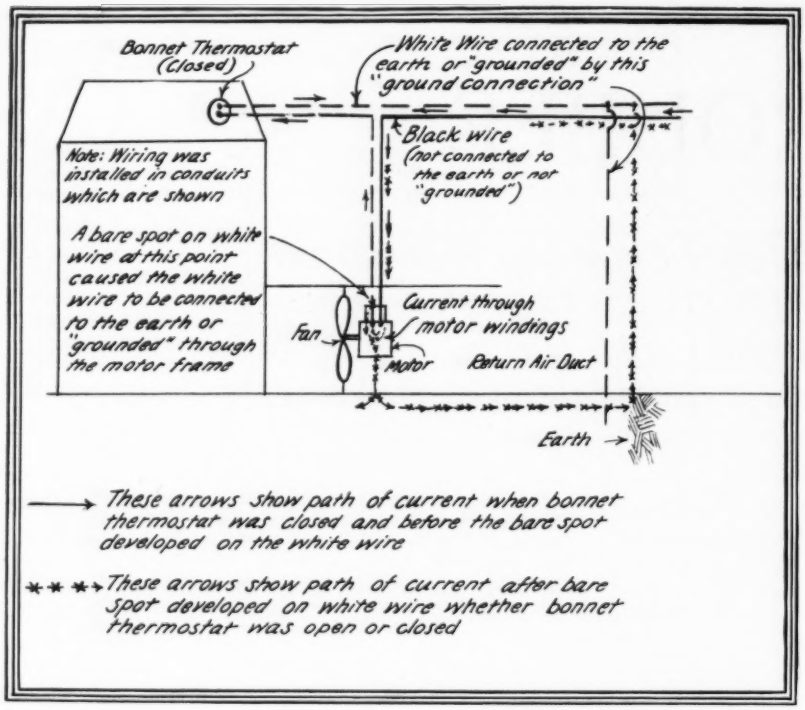

Bonnet Thermostat (Closed)
White Wire connected to the earth or "grounded" by this "ground connection"
Black wire (not connected to the earth or not "grounded")
Note: Wiring was installed in conduits which are shown
A bare spot on white wire at this point caused the white wire to be connected to the earth or "grounded" through the motor frame
Current through motor windings
Fan
Motor
Return Air Duct
Earth
These arrows show path of current when bonnet thermostat was closed and before the bare spot developed on the white wire
These arrows show path of current after bare spot developed on white wire whether bonnet thermostat was open or closed

Fig. 1—This diagram illustrates the wiring connections which were made and how the trouble occurred because of incorrect grounding. The arrows indicate the path of the electric current

Fig. 2 shows the corrected wiring with the thermostat in the black or ungrounded line. If a bare spot develops at A and is connected to the earth through the motor frame, the current does not flow through the motor windings, so the motor does not run. However, the great rush of current which would be caused by this short would blow a fuse and stop the motor.

If a bare spot should develop at B, in the white wire, the current flows through the motor frame to the ground, then continues to flow through the motor windings just as though the ground had not appeared, which means that such a ground as at B does not harm and might never be discovered.

Therefore, if the thermostat is wired in the black wire, a bare spot in one wire will either cause a fuse to blow, thereby stopping the motor, or will make no difference. This is only one reason the thermostat should be installed in the black wire; another is that the motor is "dead" when the thermostat is open, which permits working with the motor without danger of a shock. If the thermostat is in the white wire (Fig. 1) the motor is never "dead" and cannot be worked on without danger of a shock.

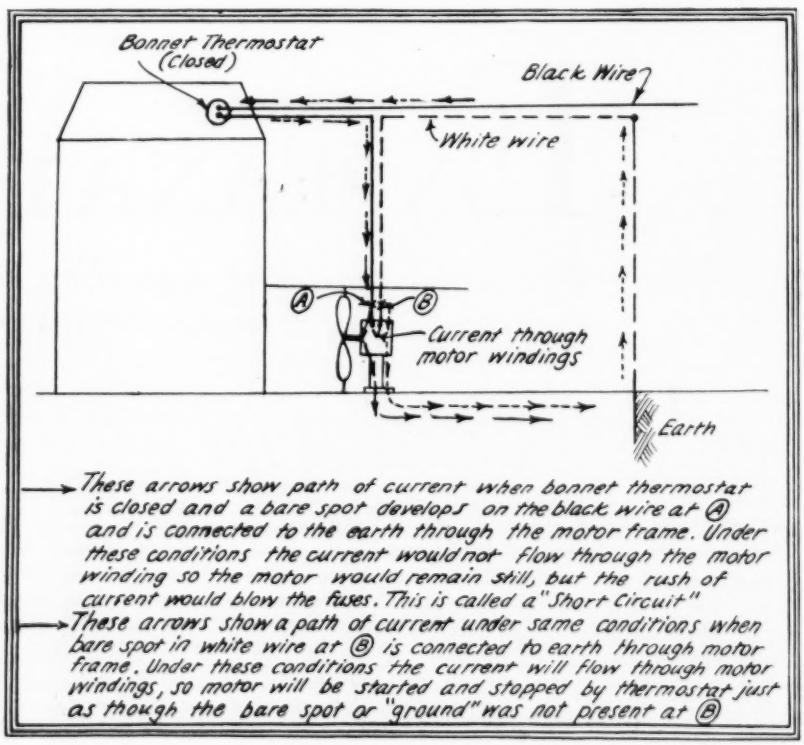
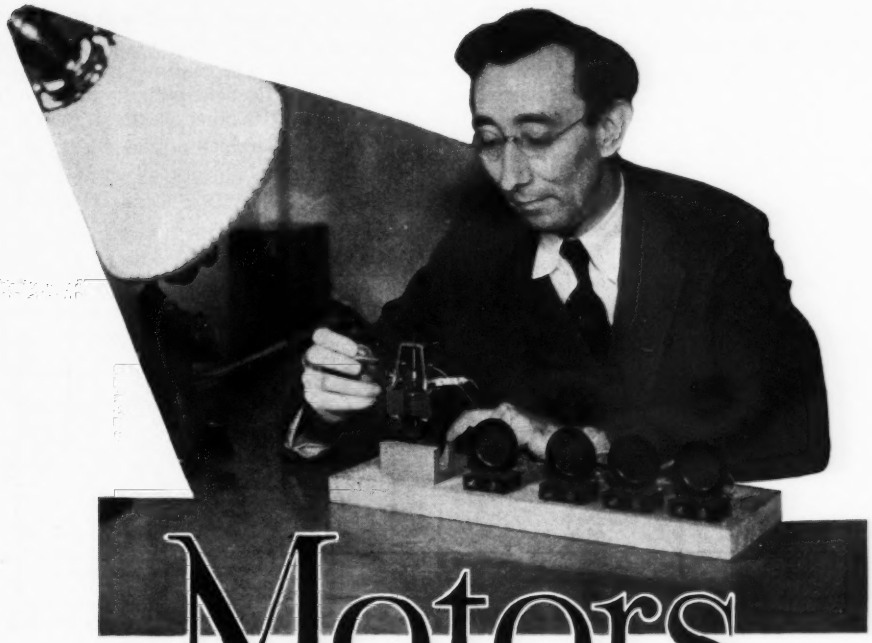

Bonnet Thermostat (Closed)
Black Wire
White wire
A
B
Current through motor windings
Earth
These arrows show path of current when bonnet thermostat is closed and a bare spot develops on the black wire at A and is connected to the earth through the motor frame. Under these conditions the current would not flow through the motor winding so the motor would remain still, but the rush of current would blow the fuses. This is called a "Short Circuit"
These arrows show a path of current under same conditions when bare spot in white wire at B is connected to earth through motor frame. Under these conditions the current will flow through motor windings, so motor will be started and stopped by thermostat just as though the bare spot or "ground" was not present at B

Fig. 2—With connections as indicated here, a bare wire would result in either a blown fuse or nothing, depending upon which wire happens to be bare and grounded. Here are the correct connections for this type of hook-up



Motors

Electricity Facts for A. H. and A. C. Dealers

By O. W. Thomas
Article No. 5

IN this issue, Mr. Thomas continues his discussion with Mr. Lucas, on what he, as an automatic heat and air conditioning contractor-dealer, should know about electrical terms and facts. Mr. Thomas starts out by saying:

"Now for a discussion of simple single phase induction motors, as shown in Fig. 1. This diagram is exactly the same as that of the series motor shown in Fig. 3, *except* that no current is forced through the armature wires. Instead the upper and lower armature wires are connected above the paper and below the paper to form a continuous loop or coil. Now let's see what happens when we connect such a motor to an alternating current

(Turn to Next Page)

The illustration at the top of this page shows a new motor. It is of interest because it is driven by light energy which is transformed into electric energy.

Sufficient electric energy to operate this electric motor can be obtained directly from sunlight. A new photoelectric cell, far more sensitive than usual ones of its type has been produced and applied here. Even the light from an incandescent lamp, falling on these cells, is sufficient to operate the motor.

Four of the cells, connected together, operate the motor that is rated at four ten-millionths of a horsepower. Enough light energy is converted into electricity when a 75-watt incandescent lamp is lighted at a distance of 8 in. from the cells so that the motor, using three ten-thousandths of an ampere of current, turns at good speed.

The photoelectric cells are of the selenium type, with light-sensitive surfaces which measure approximately two square inches each in area. Over the selenium is a film of platinum, so thin as to be semi-transparent. This film decidedly increases the sensitivity of the cell in its response to light. Such "cells" differ from photoelectric "tubes" in that the cells convert light energy into electric energy, whereas photoelectric tubes do not themselves generate electricity but, instead, control the amount of current permitted to flow through them according to the amount of light they receive. The efficiency of the photoelectric cells is of such order that one watt of power can be obtained from about 20 sq. ft. of cell area in direct sunlight. The cells have about 20 per cent of their effectiveness in the ultra-violet region, and the remainder in the range of visible light.

The motor, direct-connected to the cells, is of special construction, with jewel bearings and

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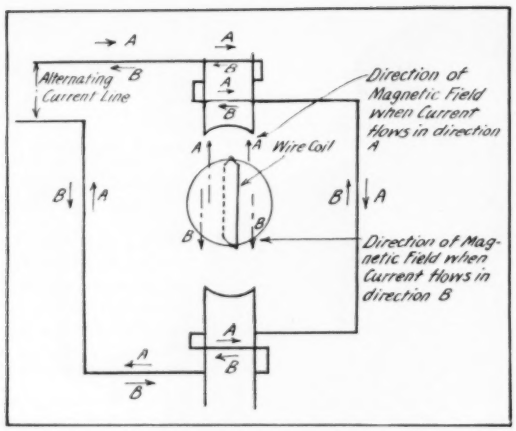

Alternating Current Line
Direction of Magnetic Field when Current flows in direction A
Wire Coil
Direction of Magnetic Field when Current flows in direction B

Fig. 1—This diagram illustrates the essential features of a simple single phase induction motor (not self starting)

line. Just as in Fig. 5, when the current flows in direction A, the lower pole is the north pole, the upper pole is the south pole and the magnetic field flows upward in Direction A. Likewise when the current flows in direction B, the upper pole is the north pole, the lower pole is the south pole and the magnetic field flows downward in direction B. What happens in the coil of wire around the armature? As previously explained, no current is generated in the coil when it is in the vertical position (See Fig. 5). If it is in the horizontal position a current is generated, but this current makes an electromagneto out of the armature coil which faces in the opposite direction from the magnetic field formed by the field coils, so the two magnets repel one another on 'dead center' and the motor does not start. This explains why single phase induction motors are not self-starting.

"Returning for the time being to the two phase motor, let us assume that it is running (Fig. 7). What would happen if we were to disconnect phase 2 when the motor is running? When both phases are working, the revolving field goes from direction A to C to B to D. If you disconnect phase 2, directions C and D will be eliminated, but the motor will continue to run because the direction of the magnetic field will jump from A to B and back to A again. In other words, it will continue to run as a single phase induction motor after it is started because the single phase field really rotates after the motor is running. Therefore the big problem with single phase

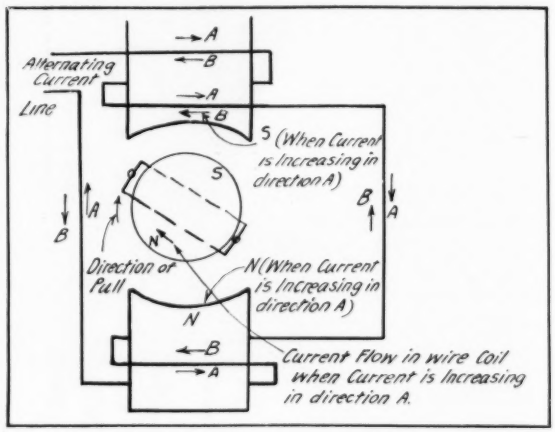

Alternating Current Line
S (When Current is Increasing in direction A)
Direction of Pull
N (When Current is Increasing in direction A)
Current Flow in wire Coil when Current is Increasing in direction A.

Fig. 3—"The diagram in Fig. 1 is exactly the same as that of the series motor shown here except that no current is forced through the armature wires."

induction motors is to start them. This is accomplished in several ways.

"The most usual way is to start them as two phase or semi-two phase motors. Such motors are known as (1) split phase motors, (2) shaded pole motors, (3) condenser motors and (4) repulsion induction motors.

"Split Phase Motors. Suppose we were to use the two phase motor shown in Fig. 7 and connect both of the field windings to a single phase line. The current in the two windings would be in step and we would not

Fig. 2—"If we insert an inductance in phase 2 of Fig. 7, under these conditions the motor starts and runs as a two phase motor except that the phases are less than 90 degrees apart."

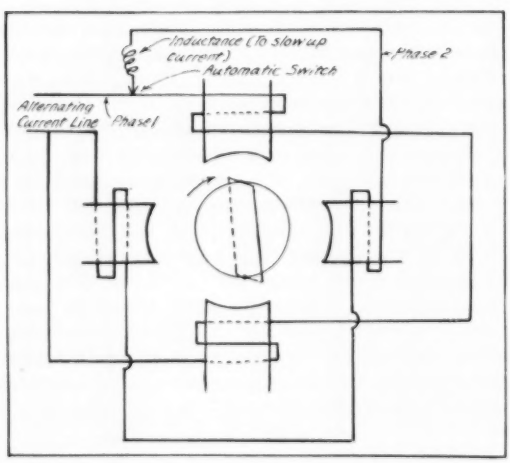
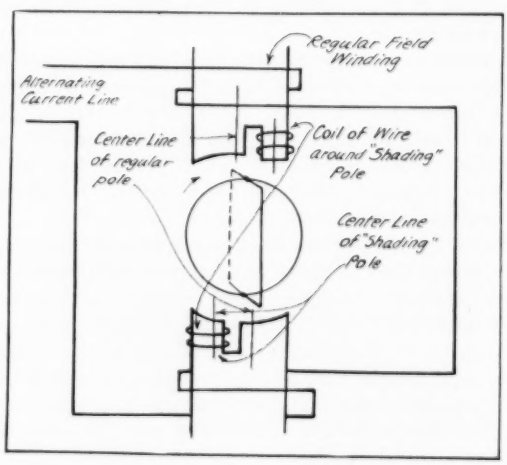


Fig. 4—"If we were to take a regular two pole, single phase induction motor, we could make a shaded pole motor out of it by adding shading poles as indicated in the diagram below."


Regular Field Winding
Alternating Current Line
Center Line of regular pole
Coil of Wire around "Shading" Pole
Center Line of "Shading" Pole

obtain a revolving field. Therefore the motor would not start. If we insert an inductance in phase 2, it will slow up the current in this phase. It does not slow up the current a full 90 degrees as with two phase current, but it will slow it up enough to produce a revolving field. Under these conditions the motor starts and runs as a two phase motor except that the phases are less than 90 degrees apart. See Fig. 2. The motor could be allowed to run in this way had it been designed for such service, but usually an automatic switch is used to disconnect the second phase, or starting winding, when the motor is nearly up to speed. These switches are sometimes operated by a relay which opens the switch a second or two after the first rush of current. The more ordinary method is to use a centrifugal switch which disconnects the starting winding when the motor approaches normal speed. It is called a split phase motor because one phase is split into two to produce a revolving field.

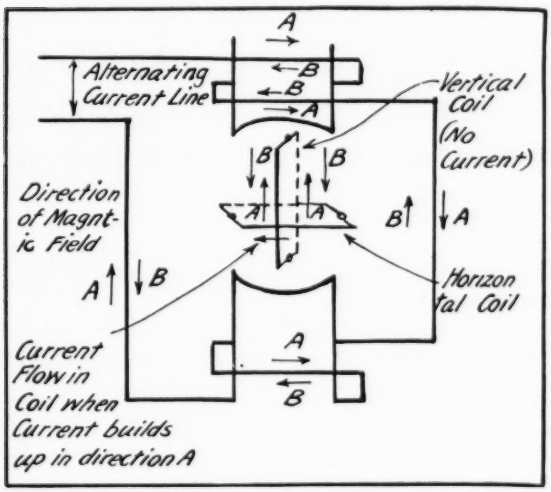

Alternating Current Line
Vertical Coil (No Current)
Direction of Magnetic Field
Horizontal Coil
Current Flow in Coil when Current builds up in direction A

Fig. 5—This diagram indicates how an alternating current is generated in a coil of wire placed in an alternating magnetic field

"Shaded Pole Motors. If we were to take a regular two pole, single phase induction motor, we could make a shaded pole motor out of it by adding "shading poles" as shown in Fig. 4. The shading pole consists merely of a coil of wire around a part of regular pole. As shown in Fig. 4, the center line of the shading pole is to one side of the center line of the regular pole, so we really have four poles. The alternating current in the regular poles induces an alternating current in the coil of wire around the shading pole but this current lags considerably behind the current in the main winding. Because the current in the two shading poles lags behind the current in the two regular poles and because the two sets of poles are not on the same center line, a revolving field is produced and the motor starts and runs as a semi-two phase motor.

"Condenser Motors. A condenser motor is also a semi-two phase motor except that it is closer to being a real two phase motor than any other type of single phase motor. As shown in Fig. 6, a condenser is used

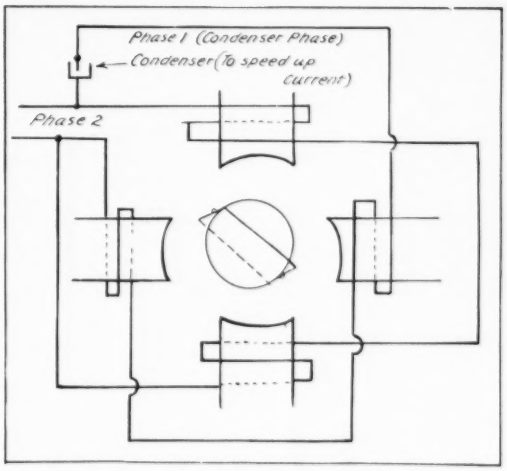


Fig. 6—"A condenser is used in phase 1 to speed up the current in this phase, thus producing a revolving field"

in phase 1 to speed up the current in this phase, thus producing a revolving field. The condenser is usually left in service, so the condenser motor starts and runs as a semi-two phase motor.

"Repulsion Induction Motors. A Repulsion Induction motor starts as a repulsion motor. After the motor is up to speed, a centrifugal device short circuits the arma-

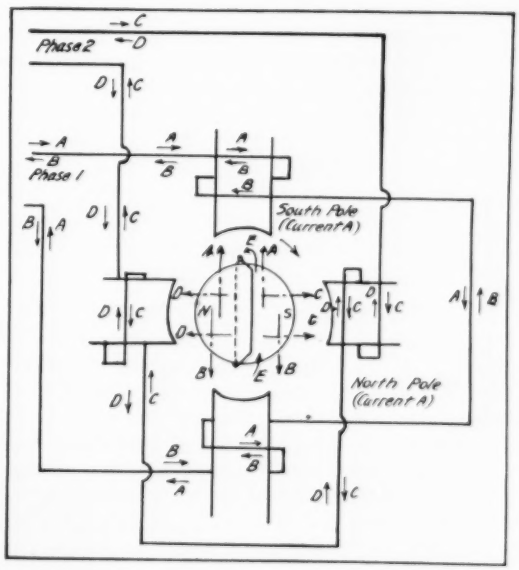


Fig. 7—"Suppose we were to use the two phase motor shown here and connect both of the field windings to a single phase line. The current would be in step and we would not obtain a revolving field. The motor would not start."

ture coils which converts the motor into a regular induction motor. (See Fig. 1.) Sometimes this centrifugal device also lifts the brushes so they will not wear out, but this complication is usually omitted on small motors, and the brushes are left to ride on the commutator."

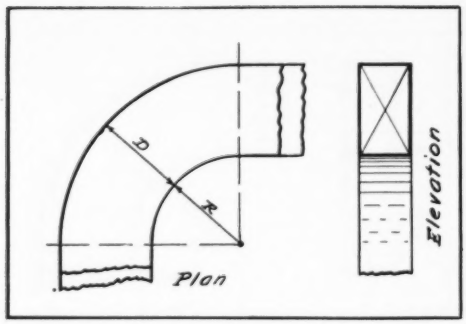


Fig. 1—Typical duct elbow with radius equal to side

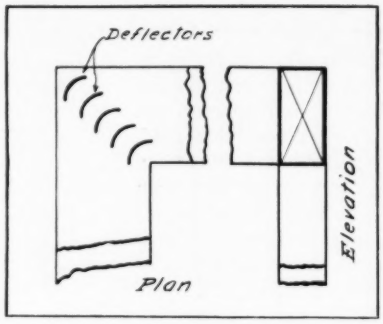


Fig. 2—Elbow with square end

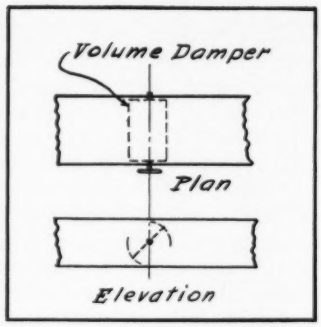


Fig. 3—Typical volume damper

How to Size and Design

This installment, which is the tenth of Harold L. Alt's series, takes up some of the very prac-

IN all central air conditioning systems it is necessary to convey the cooled (or warmed) and treated air from the apparatus where the conditioning is done to the rooms to be conditioned and this is accomplished by what is termed a "duct system." Technically a duct is usually considered as a horizontal run and a flue as a vertical run but this distinction often is lost sight of in ordinary usage. The duct system usually is of sheet metal although masonry ducts, spaces above hung ceilings, halls and passageways occasionally are called into service in the flow of the air and entirely on the basis of economy in first cost. Sheet metal, however, is most satisfactory all things considered as it lends itself to easy air flow, minimum space required, has a very small temperature lag and may be insulated at minimum cost to avoid the transfer of heat between the air handled and the surrounding air.

OBJECTIONS TO MASONRY DUCTS

Masonry ducts and flues have several objections to be urged against their use among which might be mentioned

a. Difficulty in controlling air temperatures passing through such flues until the flues have assumed a temperature practically the same as the air.
b. Cumbersome and costly.
c. Difficult to insulate.
d. High friction losses.
e. Hard to obtain sweeps and curves in construction.

Jobs in which underground ducts of masonry have been used often give trouble on starting the system due to the fact that the air delivered to the room has suffered a big change of temperature owing to having passed through such conduits.

The construction of such masonry conduits under the floor constitutes a heavy expense which is considerably increased if every turn, transformation and branch is made with the same care, radii, and easy flow construction the same as would be expected with sheet metal. The sides even if plastered—and usually they are not on account of the added cost—offer a greater amount of friction to the flow of the air and the sharp corners and straight segment bends usually add to this friction. The only method of insulation is to line such masonry with some sort of insulating material and then plaster the outside of this material. While possible from a construction standpoint, this adds considerably to the cost and involves difficulties on the floor and roof of the conduits.

If it is decided to use sheet metal, the question at once arises as to just what metal should be used; before the advent of cooling, ordinary plain galvanized iron was perfectly satisfactory as the air passing through the

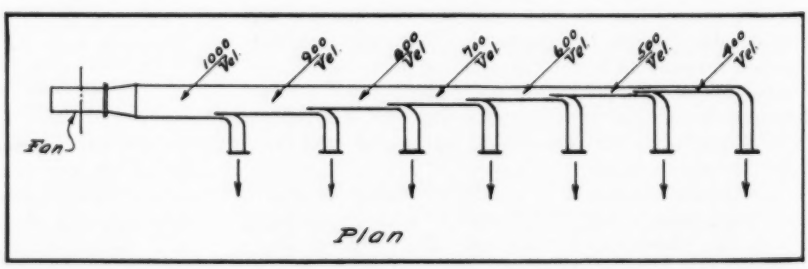
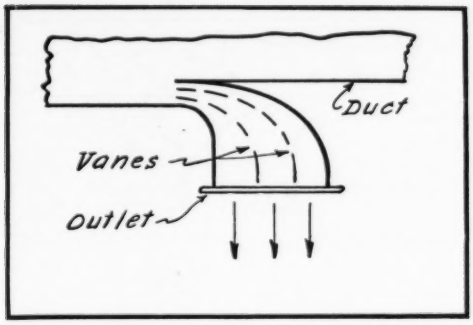
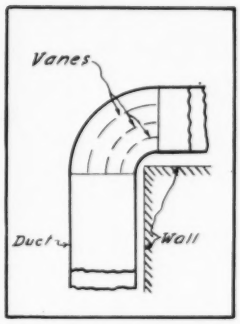


Fig. 4—This plan of a duct system with its branches indicates a method of determining velocities in a system





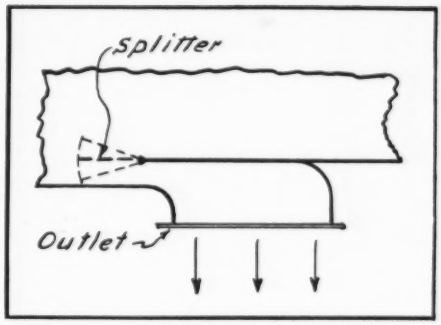


Fig. 5—Securing distribution over the face of grille **Fig. 6—Short radius vanes** **Fig. 7—Use of splitter for volume damper is shown**

Ductwork for A.C. Jobs

tical considerations which are met in actual installations. The velocity method of sizing is given

duct system was heated at least to the room temperature and oftentimes even beyond the room temperature. Moreover, when it was humidified in a humidifier—or air washer as it was termed at that time—it was reheated before entering the duct system so there was no tendency for the condensation of moisture to occur either on the inside or outside of the sheet metal system under consideration.

COOLING BRINGS SWEATING PROBLEM

With the advent of cooling a different phase has developed and that is the handling of air in the pipes which might be 15 to 20 Fahrenheit degrees below the temperature of the spaces through which it has to pass on the way to the room and with the consequent possibility of sweating. Therefore the matter of sheet metal to be used in systems where cooling is to be used, or where cooling may be installed in the future, comes down to one of using the material most resistant to corrosion and at the same time within the limits of permissible cost laid down for the installation in question.

There are any number of methods by which duct system sizes may be determined some of which are very complicated and others of which are not quite so involved but which are bad enough. The simplest method is what is known as the velocity method and this will be used here as its simplicity offsets a multitude of faults that otherwise might be urged against it. In this system the outlet farthest from the fan (otherwise, the last outlet at the end of the longest run) is arbitrarily given a velocity of 400 ft. per minute (f. p. m.) and the main duct at the fan similarly is set at whatever velocity is desired at this point (usually 1,000 to 1,200 f. p. m.) and the velocities in the portions of the system lying between these two extremes is stepped up in equal increases so as to reach the fan velocity when the last outlet (nearest the fan) has been passed.

Thus, if there were seven outlets on the main line, each step-up in velocity would amount to $\frac{1,000 - 400}{6}$ or 100 f. p. m. and the velocity in the duct supplying the last outlet would be 400 f. p. m., the second to the last outlet, 500 f. p. m., and so on up to the seventh outlet where the velocity would be at 1,000 or that desired for the fan discharge duct. This is illustrated in the plan drawing marked Fig. 4.

Where branch lines come off of the main line, the last outlet on the branch again is assumed to have a velocity of 400 f. p. m., and the branch from the main is assumed to have the same velocity as in the main at the point where the branch is taken off. Then the branch duct velocities are stepped up until the main ve-

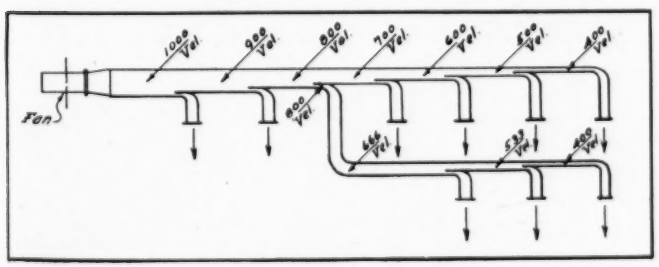


Fig. 8—The velocity method of determining duct sizes is considered in this article and this plan shows its application to a certain system of branch ducts

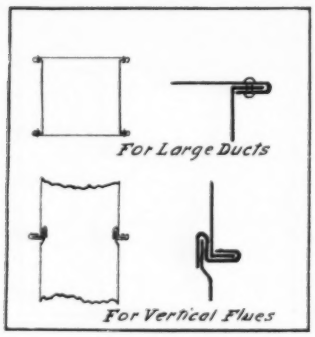


Fig. 9—Typical joints for ducts

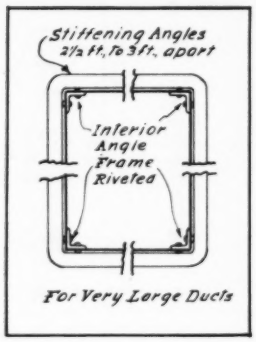


Fig. 10—Duct reinforcing

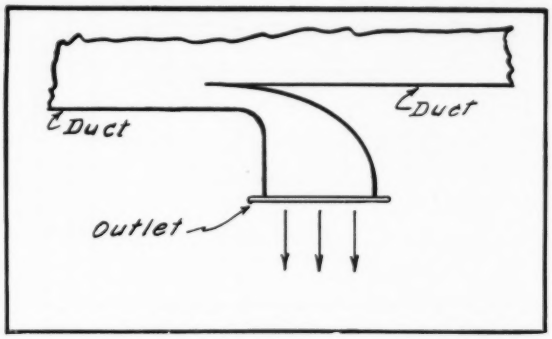


Fig. 11—This sketch shows a method of forming duct outlets

locity is reached at the main. For example, assume that the third outlet from the fan in the system previously shown feeds a branch having three outlets. Then, the last outlet on the branch would have a velocity of 400 f. p. m., and the branch from the main line would have a velocity of 800 f. p. m., and the step-up for three outlets would be (800 — 400)/3 or 133 f. p. m., each. This would make the velocity to the second to the last outlet 533 f. p. m., to the main 666 f. p. m., and at the main branch the same as in the main line supplying this branch. This is illustrated in Fig. 8.

An exhaust system or re-circulation line is sized exactly in the same manner for—after having obtained the velocities—it is only necessary to divide the air carried by the duct at any particular point by the velocity at the same point to obtain the number of square feet of duct area required. How this is done is illustrated in Fig. 12 where the main line with the branch previously considered has all of the air quantities added and marked on each portion of the line with the number of square feet of duct area indicated immediately above. The figures in parentheses opposite each outlet are the air quantities supplied in c. f. m.

The details of sheet metal duct systems may be divided into elbows, transformations, register outlets, volume dampers, splitters, vanes and joints. Possibly the most important of these are the elbows which constitute a necessary part of every duct system.

Elbows in the ordinary form for square ducts—which, by the way, usually are rectangular—are made with the throat radius equal to the width of the duct at the point of turn. In other words, in Fig. 1, "R" equals "D." In cases where this amount of radius is not obtainable it may be shortened but this will be at the expense of increased friction. The use of a throat radius greater than the duct width is unnecessary because the reduction of friction beyond this point for greater radii, becomes almost negligible.

EXPERIMENTS ON AN ELBOW

Recently experiments have been conducted with another type of elbow. This includes a square-end ell and vanes set to deflect the air around the corner. This is illustrated in Fig. 2. While the friction may be somewhat less than that in the elbow first illustrated there are several objections to this type of construction at the present time. These consist of

a. Unfamiliarity of the sheet metal worker with its construction.

b. Danger of the small vanes working loose some time.

c. The saving in friction is trifling compared to the other losses in the system.

d. The lack of exact and definite information as to the number, size and location of the vanes in elbows of varying sizes, transforming ells, etc.

Considering the fact that the ordinary duct system including the grilles seldom has a total resistance of over ⅜ in. to ½ in., static pressure and that the entire system resistance usually runs 1¼ in. to 1½ in., static pressure, it may be seen that any *partial* saving effected in the elbows alone, of the distribution system would amount to very little.

Transformations, if possible, should not be of lesser length than the greatest dimension of the duct

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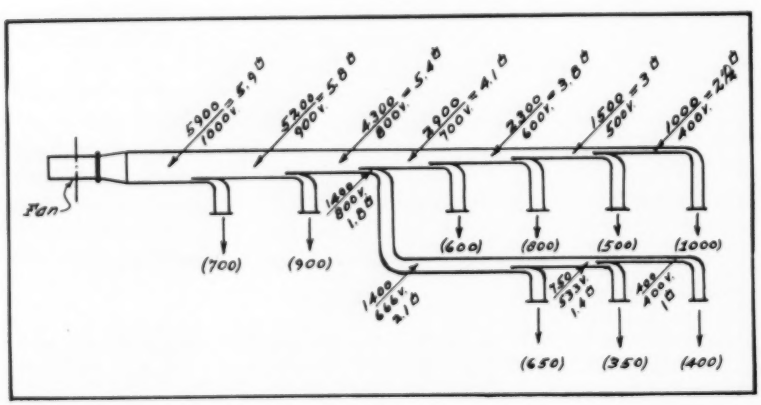

Fig. 12—The method of determining pipe areas in a duct system is indicated in this plan drawing. Note how the areas are figured

Research Gives Practical Data on Room Cooling

Those who are laying the groundwork now for cooling sales next summer will find in this article much material to add to their store of useful information

By A. P. Kratz, M. K. Fahnestock, and S. Konzo

THE principal objects of this investigation were (1) the determination of the method of operation and the control of the unit room coolers, and (2) the determination of the performance of the unit room coolers as measured by their ice melting capacity and

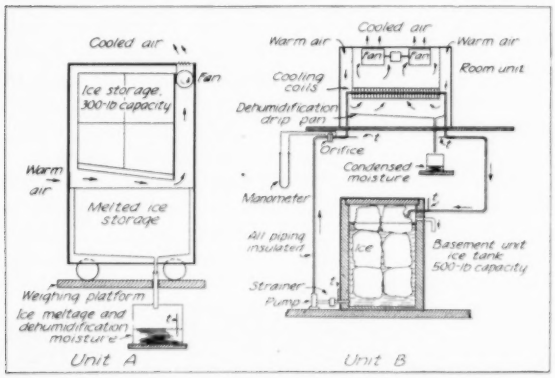

Fig. 1—Diagrams of the two types of commercial unit room coolers tested are shown here

by their effect on the ambient air, including temperature, humidity, and motion.

A complete description of the Research Residence in which these tests were conducted is given in two papers previously published by the Society.

Two types of commercial unit room coolers, Fig. 1, were used during these tests and their location in the living room on the first floor of the residence is shown in Fig. 2.

Unit *A* was a portable insulated ice chest, consisting of two compartments, one located above the other. The upper compartment was for ice storage, with a maximum capacity of 300 lb. of ice when fully loaded, while the lower compartment formed a tank for holding the melted ice and water collected from the dehumidification of the air. The ice compartment was provided with special metal surfaces, in contact with the ice on one side and

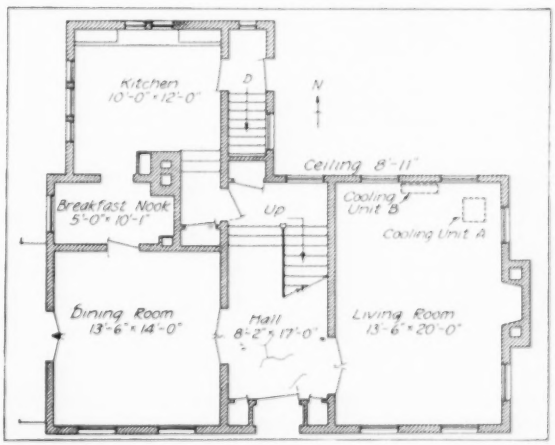

Fig. 2—Here is the first floor plan of the research residence which indicates the location of the cooling units

exposed to the air on the other; the side exposed to the air having extended fins which materially increase the heat transfer from air to ice. The warm air from the room, entering through a grilled opening in the front of the unit, Fig. 1, passed under and up the back side of the ice compartment in direct contact with the ice, and with the cold, finned, metal surfaces, into the suction inlet of the twin-motor centrifugal fans. The latter ejected the cooled air into the room from the top of the cooling unit.

This paper is the result of research conducted at the University of Illinois in cooperation with the A. S. H. and V. E. Research Laboratory and the National Warm Air Heating and Air Conditioning Association.

The results presented in this paper were obtained in connection with the summer cooling investigations conducted during the summers of 1931 and 1932 in the Research Residence, Fig. 1, at the University of Illinois, by the Engineering Experiment Station under the direction of A. C. Willard, Acting Director of the Engineering Experiment Station and head of the Department of Mechanical Engineering. These results will ultimately comprise part of a bulletin of the Engineering Experiment Station. Special acknowledgment is due to the National Association of Ice Industries, the Utilities Research Commission of Chicago, Ill., the General Electric Co., the Carrier Corp., and the American Blower Corp. for their cooperation. Acknowledgment is also due E. L. Broderick, Research Assistant and A. F. Hubbard, Special Research Graduate Assistant, for active participation in the detailed work of the investigation.

Presented at the 41st Annual Meeting of the American Society of Heating and Ventilating Engineers, Buffalo, N. Y., January, 1935.

The water resulting from the melting of the ice, together with any condensation of moisture resulting from the dehumidification of the warm room air as it came into contact with the ice and cooling surfaces, was drained into the tank in the lower compartment.

For test purposes, this unit was mounted on a portable platform scale, which was sensitive to 0.01 lb. and both the ice meltage and dehumidification rates were determined by direct weights.

Unit *B*, Fig. 1, consisted of an insulated ice storage tank of 500 lb. capacity, located in the basement, and a cooling unit placed in the living room on the first floor,

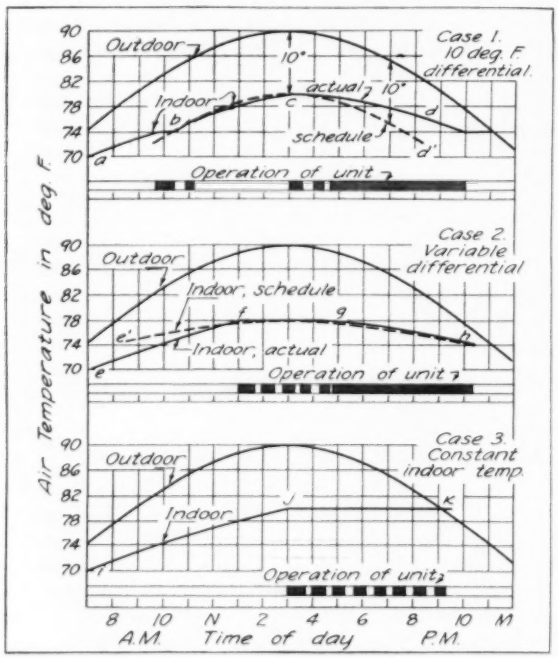

Fig. 3—The charts show three schedules of room air temperature maintained with the room cooling unit designated as Unit A

Fig. 2. The cooling unit consisted of an attractively finished cabinet, which enclosed the extended surface cooling coils, dehumidification drip-pan, and fans. The cold water was pumped from the storage tank through the cooling coils, over which the warm room air was circulated by means of a twin-motor centrifugal fan which could be operated at three different running speeds. For the tests discussed in this paper the lowest fan speed was used. The dehumidification, or moisture condensed out of the air, drained from the cooling coils into a shallow drip pan beneath the coils from which it was collected and weighed.

It should be noted that both units *A* and *B* made no provision for introducing air from outside the house, but merely recirculated the air in the room which was cooled.

The first floor of the Research Residence, Fig. 2, consisted of a living room, a hallway, a dining room, a breakfast nook, and a kitchen, with a total net volume of 7,300 cu. ft. The living room, with a north, east, and south exposure was 13 ft., 6 in. by 20 ft., with an 8 ft., 11 in. ceiling, and had a total net volume of 2,410 cu. ft. This room contained six windows, having a total exposed glass area of 90 sq. ft. All of the windows in the house on the east, south, and west sides, which were exposed to the sun at some time during the day, were shaded with awnings, except in the case of a few tests when the awnings were raised for the purpose of determining their effect. The average occupancy during tests was one person per room.

THE PROCEDURE

Operating Temperatures from Room Cooling Units: One of the most important factors involved in space cooling is the debatable question of the proper inside temperature to be maintained and its relationship to the outside temperature. Fig. 3 shows three schedules of indoor temperatures or methods of operating a unit room cooler. The schedule for the first method, designated as *Case* 1, was based on the assumption that the indoor air temperature should be maintained at a value of 10 Fahrenheit degrees less than the outdoor air temperature at all times. This condition is represented by the broken line, and the indoor air temperature actually maintained is shown by the solid line. It may be noted that with this schedule of operation it was necessary to start the cooler unit *A*, a considerable length of time before the maximum outdoor temperature was reached, at which time the indoor temperature conditions are indicated by point *b*, and that during the period indicated between the points *b* and *c*, the outdoor air temperature increased more rapidly than the indoor air temperature. It should also be noted that after the outdoor air temperature had reached a peak value and started to decline, it was necessary to reduce progressively the indoor air temperature in order to maintain the constant differential as specified by the schedule. This reduction in indoor air temperature, accompanied by a reduction in the temperature of the contents of the room, such as furniture, inside partition walls, etc., in the late evening hours when the cooling load was just reaching a peak due to the lag in heat transmission through the outside walls, imposed such an exceedingly heavy load on the unit as to make this schedule of operation impractical. A unit or plant of sufficient size to maintain this schedule in the late afternoon or evening would be prohibitive in first cost and uneconomical to operate. Furthermore, if the indoor conditions were conducive to comfort during the peak outdoor temperature, there was no indication or reason to believe that the maintenance of these conditions resulted in discomfort after the peak had passed.

In the method designated as *Case 2*, Fig. 3, an attempt was made to maintain the schedule of desirable indoor air temperatures recommended in THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS' GUIDE, 1932. This schedule provides for a variable differential between the indoor and outdoor temperature, the differential increasing or decreasing progressively as the outdoor temperature increases or decreases. The difficulties encountered with this method of operation were similar to those already enumerated under *Case* 1, but somewhat less pronounced due to the variable differential. In addition, both methods required careful, impractical manual control and adjustment, which would

(Continued on Page 95)

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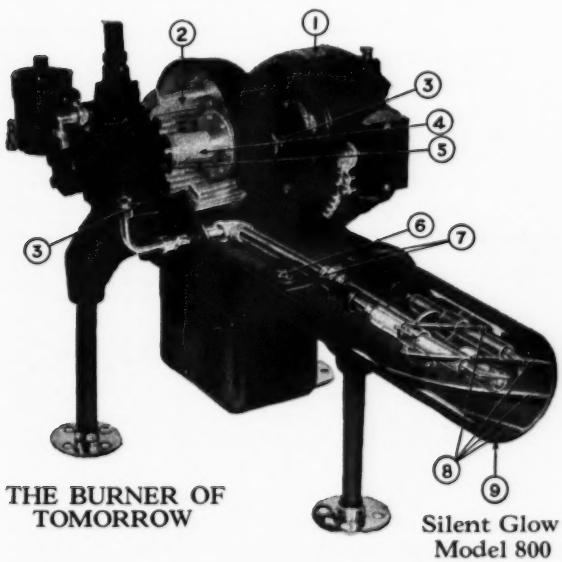

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Automatic Heat and Air Conditioning Questions

AUTOMATIC HEATING FOR GARAGE

To the Editor:

There is an installation in a three-car garage with a small cast iron steam boiler of possibly 600 sq. ft. of radiation set in an ante room just off of the garage. This boiler is connected with a fan operated heating unit by a 2-in. main approximately 8 ft. long. This has proved unsatisfactory due to the fact that under ordinary operation when the voltage in the fan varies and the

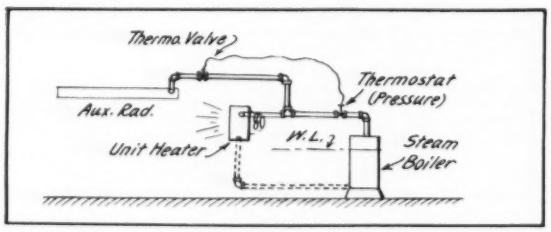

Fig. 1

fan speed is reduced, the boiler pops off the safety valve. This has happened several times to the annoyance of the owner.

Is there any way that this system could be changed over to a hot water system with an expansion tank so as to compensate for the fan variations without the present danger of ruining the boiler?

Mich. W. L. W.

To the Reader:

We infer from your letter that you have a steam boiler on which the only load is the single unit heater and that at times the steam consumption of the unit varies so quickly that the boiler builds up excess pressure and blows the safety valve before the regulator is able to cause any material reduction in the fire by closing off the draughts.

In the first place we are very much surprised to hear of a case where the motor varies in speed to this extent; ordinarily the variation in electrical current shows up much more quickly in the light flicker and any circuit which is sufficiently constant to prevent light flicker is also sufficiently constant to give practically a constant motor speed. Our first recommendation is to see that the motor and fan are thoroughly oiled as we have heard of one case where under a similar condition the whole trouble was cured by a bit of oil in the right place.

The second remedy is to set the boiler regulator down so as to only carry 2 to 5 lb. on the heater and set the safety valve on the boiler at 15 lb., so as to provide for some build-up in pressure before the safety valve will blow. In the time required to build up this pressure to the 15 lb., where the safety valve will blow, the draughts may be able to reduce the fire sufficiently so that the steam supplied will only equal that required by the unit at the lower speed and thus the safety valve will not blow at all.

If this is insufficient to cure the trouble, a sort of heat flywheel may be added by using an auxiliary radiator of about 50 per cent the capacity of the unit and connecting the supply valve on this radiator to a pressure control on the boiler so that this radiator will be thrown on whenever the boiler pressure rises to, say, 10 lb., this presumably being the time when the fan speed has fallen off and before the boiler draughts have exerted any real retarding effect on the fire. This scheme is shown diagrammatically in Fig. 1.

Still another method would consist of installing a second unit heater with a pressure control on the steam line so that the second unit will cut in and operate whenever the steam pressure exceeds 5 or 6 lb., and thus help out the first unit when the steam used by the first unit is, reduced; this, of course, is simply the substitution

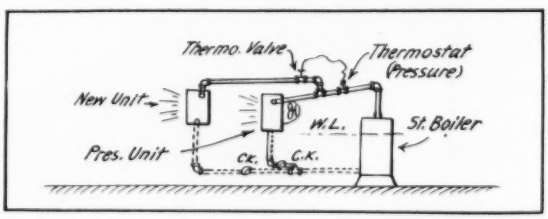

Fig. 2

of a second heating unit in place of the auxiliary radiator suggested above and works in a similar manner. See Fig. 2.

The chief objection as we see it to the changing over to a hot water installation is the danger of the unit freezing in the garage if the electric current ever should fail

during the night or, for that matter, at any time when severe outside temperatures prevail. The second objection is that with an open tank system you would not be able to get the same amount of heat out of the unit in the garage as you do with steam unless you carried water at 215 deg. Fahr. or higher and this would result in boiling the water with an open tank. On the other hand a closed hot water system with a tank under pressure in the ante room near the boiler would overcome this difficulty but would leave so small a range before the water would boil that the slowing down of the fan would be likely to boil the water in the system just as the slowing down of the fan causes the boiler to blow off now due to the sudden reduction of the heat demand.

One other point may be considered and that is whether the boiler is not much oversized in comparison to the heat demand of the unit even when operation is at full fan speed. For example, the unit may have a maximum steam demand equivalent to say 350 sq. ft. If the boiler size was picked out on a basis of radiation plus 25 per cent for piping plus 25 per cent for pickup—as many boilers are—it will be seen that it easily is 50 per cent oversized as there is practically no distribution piping in this installation and practically no pickup load in the morning. Had the correspondent given us the e.d.r. rating of the unit and the method by which the unit is controlled or operated, we could have answered this question somewhat more intelligently.

READER ASKS QUESTION ON BOOK

To the Editor:

Will you please explain in detail the derivation of the formula for Underheated Rooms on page 83 of your book, "Oil Burner Heating"? Particularly in connection with the symbols, "H" and "k." I trust that you will let me have this information at your earliest convenience.

La. Z. W.

To the Reader:

The formula to which you refer is the one used for ascertaining the resultant temperature inside of a room with a given temperature outside and the required amount of radiation in order to maintain 70 deg. Fahr. in the room with some basic outside temperature for which the system is designed. As given in the book this formula is

$$\frac{k\ (P - TI)}{TI - TO} \text{ equals } \frac{k\ (P - ti)}{ti - to}$$

when

TI is the temperature to be maintained inside (usually 70 deg. Fahr.) when the outside temperature is at the minimum (usually zero) and for which the system is designed.

TO is the minimum outside temperature for which the system is designed—usually zero.

ti is the temperature actually obtained inside at the time of the test.

to is the temperature existing outside (average) during the test.

H is the heat loss from the building or room per degree temperature difference between the inside and the outside.

P is the temperature of the steam in the radiator for which the system is designed.

k is the co-efficient of transmission from the radiators per degree difference between the room temperature and the steam temperature.

Possibly what has confused our correspondent is the fact that "H" represents the total heat loss from the room per degree of temperature difference between the room temperature and the outside temperature. Thus, if a room figured under the maximum heat requirement condition (usually zero and 14 deg. Fahr.) as losing 9,600 Btu. per hour, the Btu. lost per degree of temperature difference (or "H") would be

9,600 / 70 or 137 Btu. per degree difference.

The factor "k" is a similar quantity based on the total transmission of heat from the radiators to the room per degree of temperature difference. Ordinarily, a radiator is presumed to emit 240 Btu. per sq. ft. of nominal rating when standing in still air at 70 deg. Fahr. and supplied with steam at 1 lb. gauge pressure. Under these conditions the temperature of the steam is about 215 deg. Fahr. The temperature difference between a room at 70 deg. Fahr. and steam at 215 deg .Fahr. is 145 degrees. Then the value of K per sq. ft. would be 240 Btu./145 or 1.65 plus. But in the formula "k" is not for 1 sq. ft., but is for all of the radiation installed in the room or building. Thus, for a room with a maximum heat loss of 9,600 Btu. we would install 9,600/240 or 40 sq. ft., of steam radiation. And the value of "k" for this amount of radiation is

9,600 Btu./(215 deg. Fahr. — 70 deg. Fahr.)
or
9,600 Btu./145 degrees
or
66.2 Btu. per hr.

If any other steam pressure is used than 1 lb. gauge it is necessary to use the temperature difference between the actual steam pressure contemplated and the room temperature and in the formula in the book steam was assumed on a maximum demand day as approximating 4 to 5 lb. gauge, or with a temperature of 228 deg. Fahr. Under this condition the formula may be reduced down by the method given in the book to the very simple one of

ti equals 0.695 × to plus 70 deg. Fahr.

This is based, of course, on the assumption that the radiation *is sufficient* to maintain the room temperature of 70 deg. Fahr. when the outside temperature is at the minimum of zero. The results from this formula are used to plot the line of "Correct Radiation" on the chart. In this case the room temperature of 70 deg. Fahr. and an outside temperature of zero determine one point for the line of "Correct Radiation" and a room temperature of 228 deg. Fahr. and an outside temperature of 228 deg. Fahr. are assumed as the other point of the "Correct Radiation" line, it being evident that when the room temperature reaches the temperature of the steam in the radiator all transmission of heat from the radiator will cease and the outside temperature must then equal the room and steam temperature in order to maintain 228 deg. Fahr. in the room.

The 10 per cent, 20 per cent, 30 percent, etc., lines are then plotted in proportion to the correct radiation line on the theory that if the correct radiation gives the

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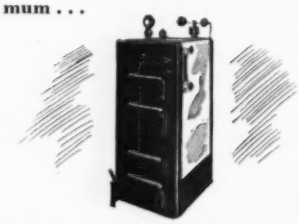

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proper room tempeature difference with the outside that any fraction of the correction of the correct radiation will only result in a similar fraction of the temperature difference being maintained.

QUESTION ON POOR HEATING

To the Editor:

On inspecting a hot water system the other day in an effort to determine the cause of poor heating conditions we were more or less astonished to find that the system, a single pipe job, with special restricting fittings at each radiator and riser connection. As this is the first time in my experience that I have ever run across such an installation I thought it might be of interest

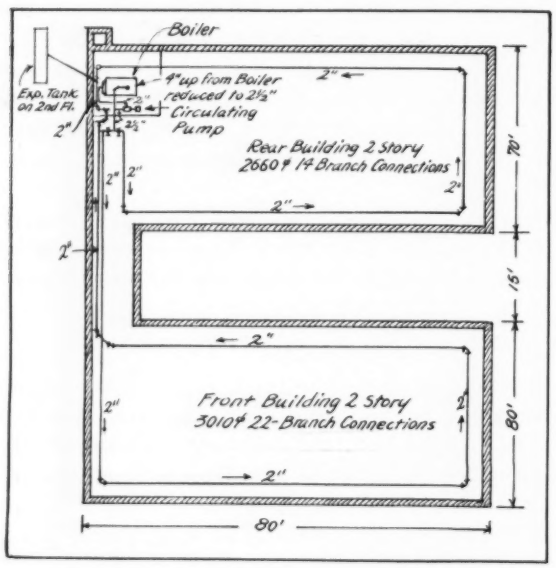

Fig. 3

to other readers. The general arrangement of the system is as illustrated in the sketch enclosed—Fig. 3—and the method of branching off for the radiators and risers is illustrated in Fig. 4 where it will be seen that these branches come off of the top and *on the inlet side* of the restricting fitting.

The total heating load is 5,660 sq. ft. of radiation and this is fed from the boiler by two 2 in. continuous circuit mains, one for each wing of the building. At the boiler the returns are attached to a circulating pump having a capacity of 80 g.p.m. and the expansion tank is located above the highest radiator on the second floor and has the expansion pipe connected into one of the returns just before the connection to the circulating pump. Many of the risers are too small, some 1 in. sizes carrying 220 sq. ft., and the operator states that at times he has to carry 210 deg. Fahr. in order to get heat at the far ends of the circuits. I would be interested to know if any of your readers have had experience with this type of fitting and how it works.

Ohio. V. H. P.

To the Reader:

Our correspondent has offered a very interesting installation for our readers' attention and we see no reason for this not making a first class hot water system if properly balanced throughout and if the circulation pump has been correctly designed for the head necessary to suit the pipe sizes and quantity of water to be circulated for the system. With 5,660 sq. ft. of hot water surface and a 25 per cent allowance for the mains the total surface amounts to around 7,000 sq. ft.

If 80 g.p.m. is being circulated this is about 5.7 lb. of water per sq. ft. per hour based on an hourly movement of water of about 40,000 lb. If each sq. ft. of heating surface emits 150 Btu. under extreme outside conditions this will mean a temperature drop in the radiators and mains of 150 Btu./5.7 lb., or about 26 degrees. Allowing that 100/125 of this occurs in the radiators and 25/125 occurs in the mains, the radiator drop will be about 21 degrees which is not at all excessive on a forced circulation system.

It is possible, however, that this system must carry more than 180 deg. Fahr. water in order to heat the building, as higher heat emissions than 150 Btu. per sq. ft. sometimes are used in forced hot water design and this would involve circulating the same quantity of

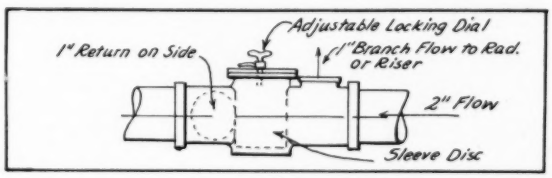

Fig. 4

water but with an increased temperature drop. With the information furnished we cannot form any opinion on this but it would seem that circulation should be obtainable in all parts of the system at any temperature of water as long as the pump has sufficient head to overcome the friction necessary.

This brings up the very interesting point as to whether the pump was installed to circulate the water with help from the gravity circulation or whether it was installed to circulate the water regardless of the help secured from gravity. Owing to the statement that it is necessary to raise the temperature to 210 deg. Fahr. in order to secure circulation in the far ends of the circuits, we are led to infer one of two things: either that the pump generates insufficient head or that the throttling action of the distribution fittings has been overdone, or incorrectly done, so that an artificial head has been added on the pump which it is unable to carry.

For example: if all the distributing fittings are partially closed down, an added resistance has been placed in the circuit which was not contemplated in the pump design while, if all of the distributing fittings are fully open, or if too many near the boiler are open to too great an amount, then short circuiting will be taking place in the radiators near the boiler and these are robbing the radiators at the far ends of the circuits.

(Continued on Page 91)

6—

Properties of Air

Temp. Deg.F.	Cu. Ft., per lb.	Weight lb. per C.F.	Grains per lb.	Grains per C.F.	C.F., 1° F. by 1 Btu.
−20	11.11	0.090	2.43	0.219	45.96
−10	11.36	0.088	4.04	0.356	47.00
− 5	11.49	0.087	5.20	0.450	47.52
± 0	11.58	0.086	5.47	0.564	48.77
5	.....	0.085	7.10	0.705	.....
10	.....	0.084	9.16	0.873	49.90
15	.....	0.083	11.77	1.075	.....
20	.....	0.082	15.01	1.321	50.83
25	.....	0.081	19.10	.....	.....
30	.....	0.081	24.11	1.96	52.00
32	12.38	0.080	.....	2.11	.....
35	.....	0.079	29.90	2.37	.....
40	12.58	0.079	36.4	2.85	52.95
45	.....	0.078	44.2	3.41	.....
50	12.84	0.077	53.5	4.08	53.94
55	.....	0.077	64.4	4.85	.....
60	.....	0.076	77.3	5.74	55.02
65	.....	0.076	92.6	6.78	.....
70	13.34	0.075	110.5	7.98	56.30
75	.....	0.074	131.4	9.36	.....
80	13.59	0.073	155.8	10.93	57.22
85	.....	0.073	184.4	12.73	.....
90	13.84	0.072	217.6	14.79	58.40
95	.....	0.072	256.3	17.12	.....
100	14.09	0.071	301.3	19.77	59.10
105	.....	0.070	354.0	22.75	.....

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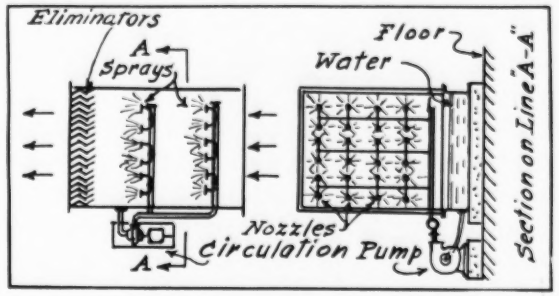
7—

Air Washing and Humidifying

Washing and humidifying air commonly is done in the air washer type of humidifier as shown below:



The circulation pump delivers water at about 20 lb. pressure to the nozzles.

The nozzles atomize the water into a fine, mist-like spray through which the air passes. The eliminator plates catch the drops, or particles, of water in the air which have not fallen into the pan.

The major portion of the spray water falls into the pan at the bottom.

The water in this pan is maintained at a constant level by a ball cock in the pan which controls the amount of make-up water admitted. The water in the pan supplies the suction of the circulation pump.

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The January issue contained the first four tables of this series. Later issues will carry additional information on air conditioning, designed to be convenient and referred to readily

8—

Humidifiers

The humidifier (see Sheet 7) usually is rated on an air velocity of 500 f.p.m. through free area. The free area is W × (H-16″) when "W" is the clear width and "H" the inside height.

The length may be 4'-0″, 5'-0″, 7'-0″ or 9'-0″ according to effectiveness. On air conditioning work the 9'-0″ length is preferable.

Each nozzle requires about 1.8 g.p.m. and there should be about 5 nozzles per thousand c.f.m. In addition, eliminator flooding nozzles requiring about 1 g.p.m. per nozzle must be used. Inside the washer a marine type light permits observation through the glass panels inside. On good humidifiers the air should leave the apparatus with a R. H. of 100 per cent (saturated) and not over 2 deg. Fahr. above the water temperature. The temperature of the air leaving the humidifier is controlled by

(a) Heating air before entering.
(b) Heating the washing water.
(c) Combination of both methods.

Note—Air below 35 deg. Fahr. must not be allowed to enter any water spray humidifier on account of the danger of freezing.

5—

Air Temperatures

In air conditioning work the temperatures usually are in degrees, Fahrenheit, and must not be confused — one with other.

Dry bulb temperature is the temperature indicated on the ordinary thermometer.

Wet bulb temperature is the temperature indicated on the wet bulb thermometer of the sling psychrometer.

Wet bulb depression is the difference between the wet bulb and dry bulb readings.

Effective temperature is the resultant temperature "sensation" produced on the human body by various combinations of wet bulb, dry bulb and air motion.

Comfort line is any combination of dry bulb, wet bulb and air motion at which 97 per cent of all people feel comfortable. In winter it falls on 66° effective temp., and in summer on 71° effective temp.

Comfort zone is the range of effective temperature within which 50 per cent of all people feel comfortable. In winter it runs 63°-71° effective temp., and in summer 66°-75° effective temp.

Questions—

(Continued from Page 88)

The way to set these fittings is to open everyone on the job to its full extent and then begin at the boiler and gradually close them down proceeding toward the far end of the main until the water supplied to all radiators is practically of the same temperature. This is called "balancing the system" and means that sufficient added resistance is placed in the shorter circuits to make their resistance equal to that of the longer circuits.

It would seem that the distributing fittings would allow this balancing to be carried out to an unusually fine point without difficulty and are particularly desirable for this feature. Also it should be checked into to see that the radiators are relieved of air especially at the ends of the circuits where the circulation seems to be poor.

Reif-Rexoil, Inc., End Their Sales Parade

Reif-Rexoil, Inc., of Buffalo, N. Y., manufacturers of oil burners and oil boilers, have concluded their "sales parade" contest which was participated in by more than 350 dealers and salesmen and was designed to stimulate retail sales. The effect of the contest was that factory sales were stepped up more than 300 per cent over any previous year. The winners were:

Ralph V. Harter of Harter-Rexoil Distributors, Rockville Centre, Long Island; Willis Ensign of Frontier Engineering Corporation, Buffalo, New York, and Robert Frazer of Harter-Rexoil Distributors.

Others receiving prizes included: George O. Miller, of Oilburner Sales & Service Company, Allentown, Pa.; W. W. Buell of Aird-Don Company, Troy, N. Y.; A. C. Smith & Company, of W. A. Case & Son Manufacturing Company; John Loy, of Aird-Don Company; Henry Eschwei of Harter-Rexoil Distributors; J. Doveral of Rexoil Distributing Company; C. E. Bennett of Rochester, N. Y.; J. F. Renner, J. Robert Geary, E. C. Bressette and J. Derocher of Aird-Don Company.

Expects Rapid Development of Air Conditioning for Residences

Speaking at the annual Rural Electric Short Course at the Branch of the College of Agriculture at Davis, Calif., Dr. B. M. Woods, chairman of the department of mechanical engineering in the University of California, stated that "conservative men throughout the country are prophesying rapid development of air conditioning for residences. Many inquiries on this subject have been received at the University and air conditioning of homes," the speaker added, "has reached the point where the owner is willing to spend as much for cooling in summer as for heating in winter." This fact is strongly brought out in the central valleys of California, where heating and cooling installations are approximately equal in number. As this subject is developed and production increased, Dr. Woods believes, the cost will be reduced.

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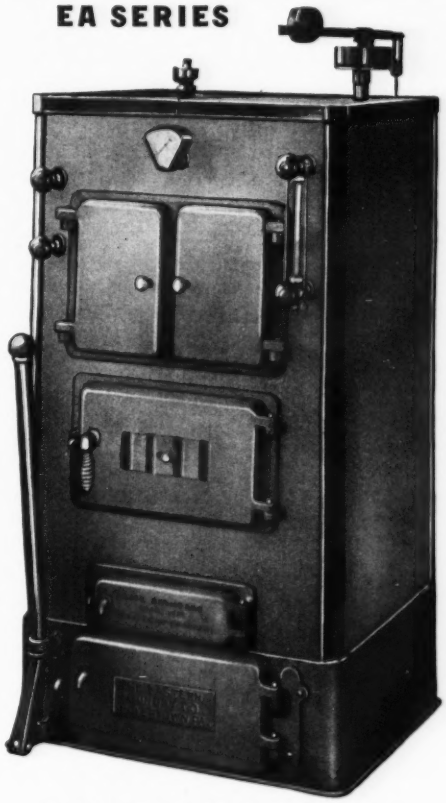

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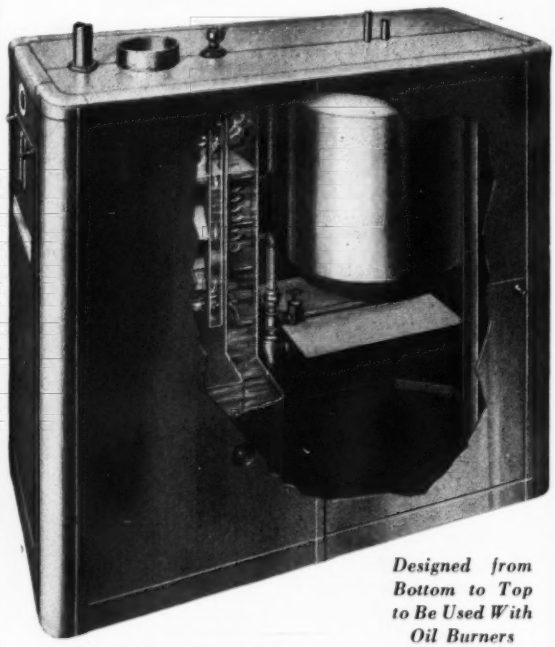

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Abstracts—

(Continued from Page 67)

The maximum demands and load factors are given for different kinds of buildings. That the maximum demand and heat consumption are affected by other variables than temperature alone is demonstrated by typical load curves from a district heating system.

Data on the hot water consumption of various kinds of buildings are included.

A. P. Kratz, S. Konzo, M. K. Fahnestock and E. L. Broderick, of Urbana, Illinois, presented a paper entitled "Study of Summer Cooling in the Research Residence for the Summer of 1934." The report stated that

Previous investigations in summer cooling in the Research Residence during the summers of 1932 and 1933 made use of ice as the medium for cooling water circulated through coils placed in the forced-air heating system, and were confined largely to studies of the factors affecting the cooling load, and to studies of the effectiveness of circulating air from the outdoors at night, both as a supplement to artificial cooling during the day and as a means for eliminating the necessity for artificial cooling during the day. In the course of these studies no outdoor air for ventilation was taken into the Residence during the periods when artificial cooling was required. The investigation for the summer of 1934 was undertaken to determine to what extent a two-ton mechanical refrigerating unit could be used to produce satisfactory cooling in the Research Residence, both when supplemented by the circulation of outdoor air through the second story at night, and when not so supplemented, under conditions in which approximately one air change per hour of outdoor air was used for the purpose of ventilation during the periods when artificial cooling was required.

The following conclusions may be drawn as applying to the Research Residence and the conditions under which the tests were conducted:

(1) An indoor temperature of approximately 80 F with relative humidity below 55 per cent results in satisfactory comfort conditions in the living quarters of a residence. For complete comfort in sleeping quarters a somewhat lower temperature is desirable.

(2) The introduction of approximately one air change per hour of outdoor air for the purpose of ventilation is sufficient to prevent objectionable odors.

(3) A mechanical refrigeration unit capable of producing 2½ tons of refrigeration is sufficient to maintain conditions of comfort on two stories of a residence similar to the Research Residence when the outdoor temperature does not exceed 103 F, and an amount of outdoor air equivalent to one air change per hour is used for the purpose of ventilation.

(4) The use of the fan in the forced-air heating system to circulate outdoor air at night amounting to 9.5 air changes per hour is not as effective in cooling the residence as a whole when the second story windows only are opened as it is when windows on both stories are opened.

(5) The cooling load during the daytime can be re-

duced by supplementing artificial cooling during the day with cooling by means of outdoor air circulated at night.

(6) Satisfactory cooling with outdoor air at night probably cannot be accomplished by employing less than 9 air changes per hour. The gain arising from the use of more than 30 air changes per hour is very small.

Still another paper presented was, "A Laboratory Study of Minimum Ventilation Requirements: Ventilation Box Experiments," by W. H. Lehmberg, A. D. Brandt and Kenneth Morse, all of Boston, Massachusetts. The object of the investigations is stated in the following:

The purpose of this work was to study by laboratory tests the relationship between the intensity of body odor in an occupied space and the quantity of fresh air supplied, the factors affecting odor intensity, and finally the possibility of utilizing odor intensity as an index of minimum ventilation requirements.

DIFFERENCE OF OPINION ON ODOR

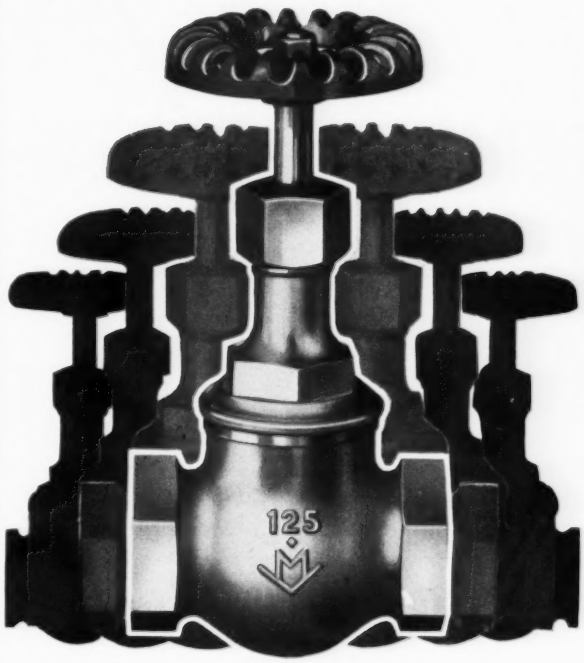
It is generally recognized that in crowded and poorly ventilated rooms the air acquires a disagreeable odor which is especially repulsive upon entering from clean outside air. Just what is the characteristic "human smell" we do not know. It is believed to be a compound odor arising from emanations of sebaceous secretion, especially when personal hygiene is defective, from decaying teeth, infected tonsils, from the stomach, bowels, skin, etc.

There is considerable difference of opinion whether pollution of room air by such offensive odors should be considered a public health matter. Many health authorities are of the opinion that, while such odors may be offensive, they are not directly poisonous nor are they known to cause any specific and lasting disease. The odor, nevertheless, may be so offensive as to cause reflex digestive and other systemic disturbances which may interfere with growth and general activity. According to the studies of the New York School Committee on Ventilation there is a reduction in appetite and a disinclination for physical work.

Fortunately, or unfortunately, the occupants of a smelly room lose their ability to recognize the odor soon after entering, but this does not necessarily mean a loss of effect. Breathing fresh air restores the ability to recognize the odor anew. To obtain a comparison of odor intensities, therefore, one should always pass directly from fresh air to the odorous air and note the odor sensation immediately.

Next to the thermal condition of the air as indicated by its temperature and humidity, the intensity of odor observed upon entering an occupied room from outside fresh air furnishes the most valuable evidence of good or bad ventilation. The general agreement is that a certain amount of fresh air from outdoors is necessary at all times in order to dilute the odoriferous matter to a concentration that is not objectionable. The amount needed varies so much under various conditions that it seemed advisable to study the problem first in the laboratory where the various factors can be controlled. The results of the present study are, therefore, limited to the laboratory conditions under which they were obtained.

MILWAUKEE VALVES



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The finer engineering features embodied in the design of "MILWAUKEE-APPROVED" Bronze Valves are the factors which safeguard the contractor's margin of profit. The heavy, full sized hexagon ends are accurately tapped and then chamfered, insuring quick, easy make-up in the line.

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"MILWAUKEE" Valves are designed to outlive the normal life of ordinary valves and give years of uninterrupted service.

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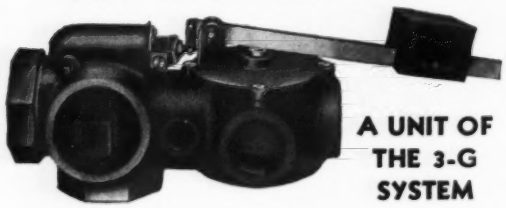
PATENTS PENDING



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If you are not already cashing in on the unlimited sales opportunities of this newest development in hot water heating control for year 'round domestic hot water — here is your chance for a substantial saving.

RISAVALVE has demonstrated its economy and efficiency so convincingly that the makers want to offer every contractor, oil burner and stoker dealer an opportunity to become familiar with it in time to cash in on the Spring business.

RISAVALVE is automatic, adjustable and free from all operating difficulties. It controls the flow of hot water in the heating circuit and enables the indirect heater to supply year 'round domestic hot water at minimum cost. It also improves radiation performance on hot water heating systems.

For a limited time the General Fittings Co. offers a big price reduction on Risavalve—one to a customer —each sale subject to our approval.

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Sales Helps Offer Aid to Dealers—

Condensed Catalog Features a Line of Automatic Controls

Automatic Products Company of Milwaukee, Wis., has just published a new condensed catalog showing all the automatic controls, which it manufactures, including thermostats, humidity regulators, heat regulator sets, oil control valves, gas control valves, magnetic gas valves, motor operated gas valves, refrigerant control valves, water control valves, solenoid operated gas valves, and gas water heater controls. This catalog is fully illustrated and gives complete information and specifications.

Envelope Folder Describes Fuel-Saving Device for Oil or Gas

W. F. Gerhardt of Richmond, Va., has just issued an envelope folder describing and illustrating in detail a device which is designed to reduce fuel bills from 25 to 50 per cent each year. This device can be installed in connection with oil burning heating plants and gas or steam boilers and warm air systems.

New Folder Describes Fire-Proof Metal Insulation

Alfol Insulation Co., Inc., Chrysler Building, New York City, has just issued an exceedingly attractive folder describing and illustrating in detail its fire-proof metal insulation. This insulation is described as vermin proof, fire-proof and water proof. Being of metal it will not burn and it provides a fire-deadening blanket in every insulated part of the structure and will thus prevent the spread of fire.

Bulletin Features Heating, Cooling and Air Conditioning Systems

The Dail Steel Products Company of Lansing, Mich., has just issued a bulletin describing and illustrating its indirect system of heating, cooling and air conditioning. This company's indirect units for steam or hot water are designed for the customer who prefers to use a steam or hot water heating plant plus air conditioning for the main living quarters of his building or for the individual who already has a steam or hot water plant and desires conditioned air in certain portions of his building. The company's indirect system of positive cooling is also described and the point is emphasized that it is available with cooling coils so that on the hottest day it is possible to have a comfortable temperature in the home, office, recreation parlors, stores, restaurants, etc. This can be accomplished, it said, by circulating water through coils if the water temperature is below 60 degrees. If water at this temperature is not available, it will be necessary to use a compressor and refrigerant.

Now in New Location

The Ohio Electric Manufacturing Co. of Cleveland, Ohio, has moved its office in Chicago from 333 North Michigan Avenue to 565 West Washington Boulevard.

Cooling—

(Continued from Page 82)

be entirely unsatisfactory in a commercial or domestic installation.

The more simple method of operation for which the cooling plant was started when the effective temperature indoors reached some predetermined value, as for example 75 deg. Fahr., irrespective of the outdoor temperature, was finally adopted as a standard, and is designated as *Case 3* in Fig. 3. This usually occurred when the indoor dry-bulb temperature reached a value of between 78 and 82 deg. Fahr. depending upon the relative humidity, although in some of the tests, slightly lower dry-bulb temperatures were maintained. The indoor dry-bulb temperature was maintained practically constant by operating the unit intermittently through the action of a simple two-point thermostat placed in the electric fan circuit. This method of operation was very satisfactory, and the indoor temperature conditions were maintained by operating the unit until the outdoor

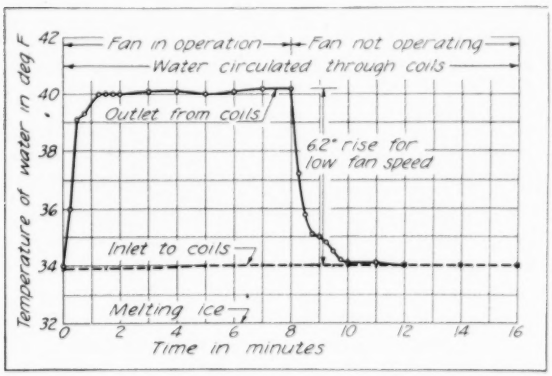


Fig. 4—This curve shows a typical temperature rise of cooling water in Unit B

effective temperature dropped to approximately the same value as the indoor effective temperature, at which time the unit was stopped and the windows were opened.

The choice of a particular dry-bulb temperature to be maintained on a given day for any domestic air cooling unit installation is governed by a number of factors, including that of economy of operation. Obviously, for economical reasons, it is advisable to maintain the highest indoor air temperature conducive to comfort. For climatic conditions similar to those of Urbana, Illinois, experience has shown that an indoor dry-bulb temperature of approximately 81 deg. Fahr., with relative humidities between 40 and 60 per cent is very satisfactory, whereas for cooler climates it is probable that a slightly lower air temperature might be necessary. Regardless of the particular indoor air temperature to be maintained, there seems to be little need for complex schedules of operation such as those illustrated in *Cases 1* and *2*.

Test Methods Used with Unit Cooler A: As previously stated, unit cooler *A*, Fig. 1, was mounted on a portable platform scale which was sensitive to 0.01 lb. and both the ice meltage and dehumidification rates were determined by direct weighing. At the start of each test the unit cooler was charged with ice, thoroughly precooled, the water drained out, and the gross weight of the unit and ice was observed. It was then operated according to a predetermined temperature schedule, *Case 3*, Fig. 3, and at the end of each hour the ice meltage and dehumidification were drained directly into a separate container and weighed as shown in Fig. 1. At the same time, after the water had been drained out, the gross weight of the unit and ice was observed, and the net ice meltage was obtained from the difference in these hourly readings. Since the water drained from the unit each hour consisted of both the ice meltage and the moisture condensed out of the air, the net amount of moisture condensed, or the dehumidification, was determined from the difference between the total weight of water collected and the net weight of ice melted. By this method of procedure both the hourly rates of ice meltage and dehumidification were very satisfactorily obtained without handling the ice or the unit.

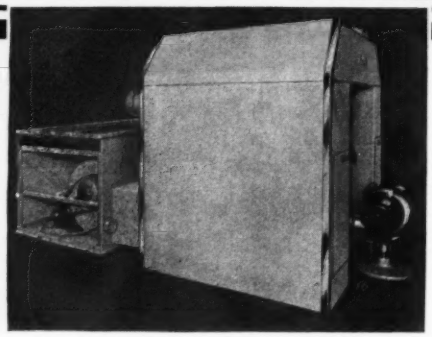
The majority of the tests with this unit were made with the unit located in the living room of the residence, Fig. 2, but several tests were also made with it located in the dining room or in the hall. When located in the living room or in the dining room, the doors between that room and the hall were closed, confining the cooling entirely to the one room. When located in the hall, the doors to the living room and dining room were opened and the entire first story was cooled.

THE ICE MELTED WAS WEIGHED

Test Methods Used with Unit Cooler B: The amount of heat absorbed by the cold water as it passed through the extended surface cooling coil in unit *B*, Fig. 1, could be determined by obtaining the weight of water circulated and the temperature rise of the water through the coil. From Fig. 4, it may be observed that although the temperatures of the entering and leaving water responded very quickly to the operation of the fan, there was sufficient lag in these temperatures after the fan was started and stopped to make it difficult to accurately determine their average values. Since the total temperature rise was of such small magnitude that a slight variation in either temperature resulted in a comparatively large variation in the temperature rise, and hence in the computed heat quantities, this method of measuring the heat absorption was replaced by the more direct method of weighing the ice melted during a test.

Previous to the start of a test the water in the tank and system was precooled. The weight of the initial charge of ice, and subsequent charges during a test were then accurately observed. At the end of a test the amount of ice remaining in the tank was deducted from the total amount charged, giving the net amount used in cooling and dehumidifying. As previously stated the moisture condensing on the cooling coil was drained into a container and weighed directly.

All of the tests with unit *B* were conducted with the cooling section of the unit located near the north wall of the living room, on the first floor of the Research Residence, as shown on the floor plan in Fig. 2. During some of the tests the door from the living room to the interconnecting hallway was opened and the unit allowed



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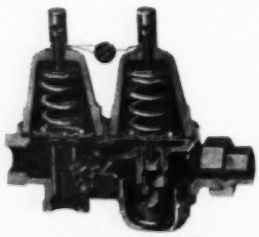

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to cool the entire first story, consisting of the living room, the hallway, the dining room, the breakfast nook and the kitchen, having a total net volume of 7,300 cu. ft.

As with unit *A*, unit *B* was operated on a predetermined temperature schedule, *Case 3*, Fig. 3, maintaining a fixed dry bulb temperature. It was operated on the *on* and *off* principle and was controlled by means of a room thermostat connected into the electric circuit to the fan.

Performance of Unit Cooler A: A typical performance record for unit *A* when cooling the living room only is shown in Fig. 6. In this test the unit was initially charged with 206.0 lb. of ice and the dry bulb temperature of the air in the living room was maintained at a constant value of approximately 75.5 deg. Fahr. The test was terminated at the end of 13.5 hours when the 206.0 lb. of ice were all melted, and it was merely a coincidence that at this time the effective temperature outdoors was approximately the same as the effective

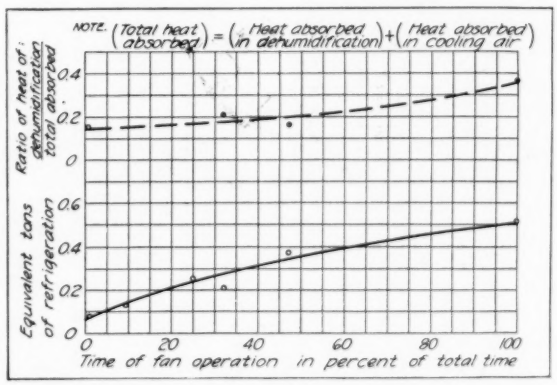

Fig. 5—Performance curves for Unit A are shown in this chart

temperature in the living room. It is significant to note however, at this time, that the unit could have been stopped and cooling continued by the introduction of night air even if the ice supply had not been depleted.

The average dry bulb and wet bulb temperatures of the air entering and leaving the cooling unit during the periods of fan operation are given:

	Entering Air	*Leaving Air*
Dry Bulb temperature	75.0 deg. Fahr.	63.8 deg. Fahr.
Wet Bulb temperature	64.3 deg. Fahr.	58.0 deg. Fahr.
Dewpoint temperature	58.6 deg. Fahr.	54.4 deg. Fahr.
Relative humidity	56.0 per cent	71.0 per cent
Moisture content of the air	73.57 grains per lb. of dry air	62.97 grains per lb. of dry air

It should be noted that the air was cooled 11.2 deg. Fahr. in passing through the unit and that the moisture content was reduced 10.6 grains per pound of dry air.

The dry bulb temperature of the air in the living room was maintained at a level approximately 2 degrees lower than that in the uncooled hall due to the operation of the unit. It should also be noted that a comparable cooling effect was obtained by the reduction in the relative humidity. From Fig. 6 it may be observed that at 10:30 a. m. when the unit was started, the relative humidity of the air in the room was 68 per cent; at noon it had been lowered to 55 per cent and between that time and

8:00 p. m. it ranged from 51 to 53 per cent. In cooling effect this reduction of approximately 15 points in relative humidity is equivalent to a reduction of 1.5 degrees in effective temperature or to a 2.0 degrees reduction in dry bulb temperature.

The total dehumidification, or the weight of moisture condensed from the air during the period when 206.0 lb. of ice were melted was 7.1 lb. This change in the moisture content of the air was equivalent to a heat absorption of approximately 7,474 Btu. The total heat absorbed by the ice melting process was composed of the latent heat of fusion of the ice, plus the sensible heat absorbed by the water resulting from the meltage and was equal to 206.0 × 144 + 206.0 (57-32) = 34,814 Btu.; 144 = latent heat of fusion of ice; 57 deg. Fahr. = temperature of water to drain.

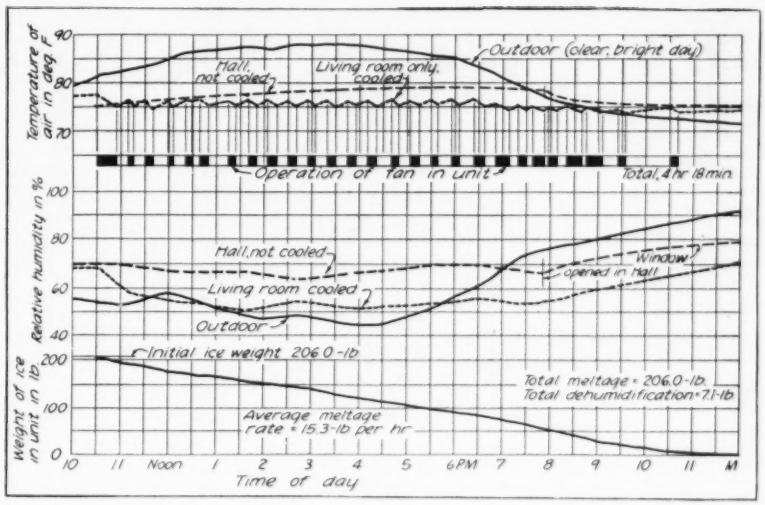
Temperature of air in deg F
Outdoor (clear, bright day)
Hall not cooled
Living room only cooled
Operation of fan in unit
Total, 4 hr 18 min.
Relative humidity in %
Hall, not cooled
Window opened in Hall
Living room cooled
Outdoor
Weight of ice in unit in lb
Initial ice weight 206.0 -lb
Total meltage = 206.0-lb
Total dehumidification = 7.1-lb
Average meltage rate = 15.3-lb per hr
10 11 Noon 1 2 3 4 5 6PM 7 8 9 10 11 M
Time of day

Fig. 6—This chart gives temperature and humidity data for test with room cooling Unit. A. (Living room only cooled; doors between living room and hall closed)

Of the total amount of heat absorbed by the ice melting process, during the entire period of the test, approximately 21.5 per cent was given up by the change in the moisture content of the air, consisting of the total heat given up by the vapor condensed and the change in super heat of the vapor remaining in the air. As shown by the upper curve in Fig. 5, the amount of dehumidification accomplished with this type of cooling unit was dependent on the percentage of the time that the fan in the unit was operating. For example, the ratio of the heat absorbed in the dehumidification process to the total heat absorbed, varied from a value of 37.8 per cent when the fan in the unit was operating continuously, to a value of approximately 16.0 per cent when the fan was not running and during which time the small amount of ice meltage was that due to standby heat leakage only.

(To be concluded)

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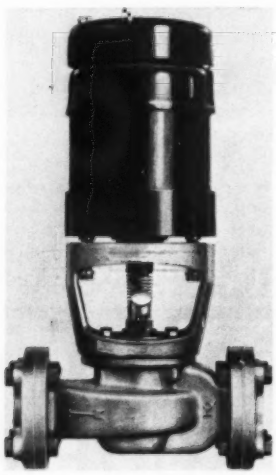
Representatives: Troop Water Heater Co., Pittsburgh; Edward Sinn, Harrison, N. J.; Strong, Carlisle & Hammond Co., Cleveland, Ohio; Lydon, Cousart & Co., Charlotte, N. C.

Products FOR Dealers

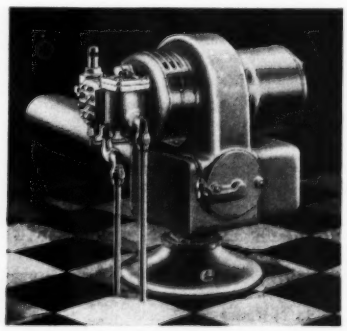
This section gives a report of the latest news of selected automatic heat and air conditioning products. Sales helps such as these work to open up new and increasing markets for A. H. and A. C. Dealers.

New Water Circulator

The accompanying illustration shows a new water circulator which has just been placed on the market as a unit for modernizing old hot water heating plants. Also, it has been made especially adaptable to new hot water heating systems which are automatically fired with oil, gas, or coal. One idea behind this equipment is that an increased flow of water over the boiler heating surfaces causes an increase in the rate of heat transfer with a corresponding increase in the efficiency of the boiler. The forced circulation provided by this unit also



is described as having a tendency to overcome the disadvantages of inadequate pipe sizes and of insufficient radiation. Another feature of forced circulation is that it makes possible the circulation of water to radiators below boiler room levels and to remote radiation on long horizontal runs. This equipment is of the centrifugal pump type. The motor is listed as being of the condenser start condenser run type, single phase, 110 volts, 60 cycles, 1725 r.p.m., especially designed for quiet operation and freedom from radio interference. The insulation is especially treated to resist moisture. Quiet operation is provided for by means of sound insulating gaskets which separate the circulator body from the moving parts. The motor is mounted on three springs and is coupled to the impeller shaft through a flexible coupling that is designed to dampen vibration. The packing is made to be of the self-adjusting type with the idea of eliminating attention to it and of preventing the bearing lubricant from entering the system. The impeller is of the double inlet balanced type and is made to offer no resistance to the gravity flow. The monel metal impeller shaft is guided in what is described as a long, well lubricated bronze bearing, located outside of the packing so as to protect the bearing from grit and to protect the system from grease. The circulator body is made of cast bronze and has water passages made with the idea of permitting gravity flow or thermal syphon operation when the unit is not running. This equipment is available in sizes having ratings of 1250, 2500, and 6000 sq. ft. of radiation, respectively. Penberthy Injector Company, 1242 Holden Ave., Detroit, Mich., is the manufacturer.

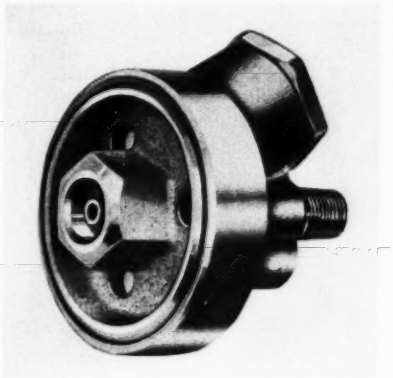


New Small Pressure Burner

A new small pressure burner, designed to meet the demands of the smaller home, just recently has been placed on the market as an addition to an existing line of equipment. This burner is equipped with a standard type ⅛ h.p. split phase motor, has a rated capacity of 1.35 to 2.5 gal. of No. 3 oil per hr. and is built for homes up to 750 sq. ft. of steam radiation. The nozzle ignition assembly is described as being co-ordinated at the factory for the purpose of insuring high efficiency and a minimum of adjustment difficulties. This equipment has been announced by The Micro Corporation, located at Bettendorf, Iowa.

Self Cleaning Nozzle

The nozzle shown in the accompanying illustration just recently has been placed on the market to include self-cleaning features. It is for use on water supply with air conditioning and humidifying equipment. This nozzle is designed with the idea of taking advantage of the intermittent discharge of water to provide an automatic cleaning or reaming out of the orifice with each opening and closing of the control valve. The nozzle is made so as to be installed on any new or old job. The body is made of brass and a stainless steel diaphragm is made to support a movable orifice through which the



fixed plunger or needle projects when the water supply is closed and when the diaphragm is in its raised or closed position. The orifice and fixed needle are made of what is described as a non-corrosive material. A by-pass or drain opening is provided. This is closed normally by a spring but is held open by the diaphragm and this spring whenever the diaphragm is in its raised position. The free area of the orifice when open is .00015 sq. in. The following table shows the amount of water passing through the orifice at different pressures:

Pounds pressure	30	40	50	60	70	80
Gal. per hour	1.8	2.0	2.3	2.5	2.7	2.9

This nozzle is designed to be used on either cold or heated water and on pressures up to 100 lb. per sq. in. Detroit Lubricator Company, located at Trumbull, Lincoln, Marquette, and Viaduct, Detroit, Mich., is the manufacturer.

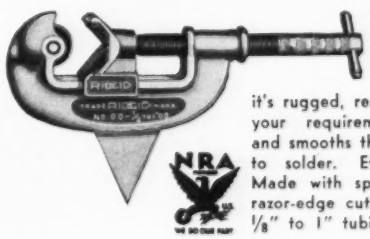
Water Control Valve

Here is a water control valve which just recently has been placed on the market for use in connection with air conditioning and refrigeration and in industrial fields. The valve also can be used as an air valve. This equipment is based on the by-pass principles for opening the main valve seat. The water enters the inlet against the main valve seat and the by-pass solenoid valve. When the solenoid coil is energized, it raises the by-pass plunger. This plunger is not attached directly to the by-pass valve stem, but travels a short distance and gains momentum before it raises the valve stem itself.

FOR QUICK, CLEAN PIPE CUTTING — THIS REMARKABLE RIDGID ALLOY BLADE

COINED out of special alloy tool steel, hammered and heat-treated and then cast into its hub, this RIDGID Cutter Blade brings you a new experience in pipe cutting. It rolls smoothly and quickly through any kind of pipe, leaving practically no burr—and it far outlasts ordinary type cutter wheels. Try it and see for yourself — it fits any RIDGID type cutter.

RIDGID Cutter frames are internally reinforced, with tempered steel. They're tough—they won't break or distort. And they're shaped to protect that sharp knife-edge blade. Four sizes, 1/8" to 4" pipe.



This new RIDGID Tubing Cutter is a trim little tool—but it's rugged, ready to meet all your requirements. It cuts and smooths the tubing, ready to solder. Efficient reamer. Made with special tool steel razor-edge cutting wheel. For 1/8" to 1" tubing.

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RIDGID

Super-Performance

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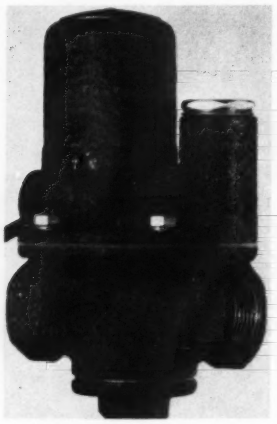
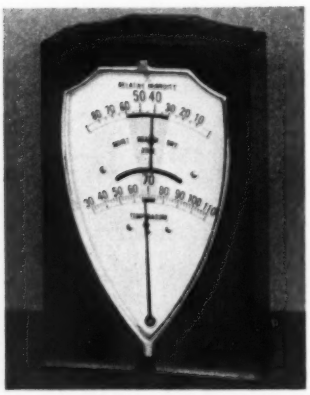
It is described as being an impact type plunger and is designed to open the valve under high pressure. When the by-pass valve is opened, it allows the water to force the diaphragm down immediately which, in turn, opens the main valve seat, thus allowing the full capacity of the water to pass through. As soon as the solenoid is de-energized, the by-pass is closed. Since the main valve is



opened against a spring, it returns to the closed position. The water above the diaphragm passes through a small port in the diaphragm. The valve construction is of brass and non-ferrous material. The plunger is made of stainless steel, the strainer of monel metal and the valve seats of special rubber composition. Automatic Products Company, located at 121 N. Broadway, Milwaukee, Wis., is the manufacturer.

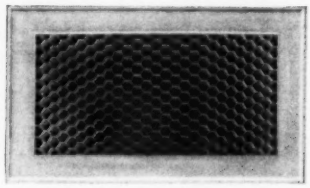


Thermometer and Humidity Meter

Here is a combination of a dial thermometer and humidity indicator which was placed on the market just recently. It will be noted from the accompanying illustration that the dial has etched on it a zone indicating the proper relation of humidity to temperature for healthful and comfortable air conditions. The case is made of black bakelite designed for simplicity. The relative humidity is indicated in steps of 5 per cent, while the temperature scale shows increments of 2 per cent. Rochester Manufacturing Company, at Rockwood Street, Rochester, N. Y., is the maker.

A New Grille Is Announced

An announcement of a new grille, just recently has been made. This has been designed so as to give definite direction to the air which passes through it. The grille is made up of a number of thin strips which are formed into a series of grooves. These are assembled to make a grille 1 in. deep with ½ in. openings. This grille is designed to direct the air in any desired direction—all straight; all to the side; part straight and part to the side, etc. Advantages listed in favor of this grille are

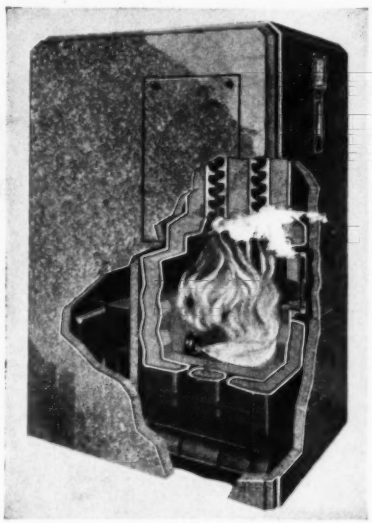


that it conceals the interior of the duct; it directs the air as desired with very little resistance; it provides a large percentage of free area (the core alone is rated as having a free area of 85 per cent) and the direction which the air leaves the grille is permanently fixed and cannot be changed by tampering. The grille is available with or without standard forced air frames. Hart & Cooley Manufacturing Co., of Holland, Michigan, is the maker.

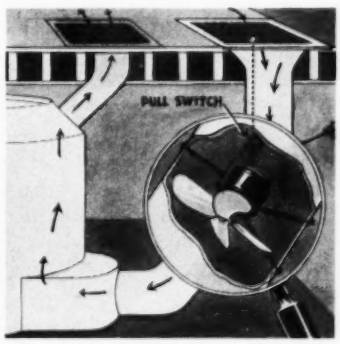
New Oil Burner Announced

An announcement just recently has been made of a new oil burner and boiler combination. The boiler is of cast iron sectional construction and is made with vertical flues. The sides of the sections are cast with comb-like prominences which intercept the travel of the gases through the boiler and which are designed to absorb heat from these gases. This equipment is available in two sizes; one is rated at 725 sq. ft. of steam equivalent direct radiation, and 1160 sq. ft. of hot water radiation. The larger boiler is rated at 1075 sq. ft. of steam equivalent direct radiation and its corresponding hot water boiler is rated at 1720 sq. ft. of radiation. The burner is of special design and is mounted within the jacket. The small unit is rated at 1.5 gal. per hour while the larger is rated at 2.5 gal. per hour. The recommended fuel is No. 3 oil. However, it is stated by the manufacturer that any of the domestic fuels may be used. The boiler is shipped completely assembled and includes an especially cast, five-piece combustion chamber which is designed so that it can be slipped into place after the boiler is set. What is described as fully automatic operation has been provided in this equipment. This includes

a built-in heater for summer and winter hot water, all necessary controls including a burner control, pressure limit control, domestic hot water control, low water cut-out, and an automatic draft adjuster located directly below the smoke hood in the jacket. The jacket is of steel, finished in what is described as a spatter dash aluminum Duco lacquer and trimmed with ivory and chromium. This jacket is lined with mineral wool insulation and is provided with sound silencers to make the



operation of the equipment inaudible. The boiler, burner and operating controls are completely inclosed in the jacket. The product is a joint production and development of Reif-Rexoil, Inc., Buffalo, N. Y., Burnham Boiler Corporation, of Irvington, N. Y. and Simplex Valve and Meter Company, of Philadelphia, Pa.



Booster Fan for Heating

The booster fan illustrated here has just been introduced for the purpose of improving circulation in sluggish warm air heating systems. It is designed to be installed in cold air ducts without a sheet metal box or container, on the basis that cold air ducts usually are 25 per cent or more oversize and thus are capable of accommodating a motor and fan without seriously restricting the flow of air under gravity conditions. The

The RIGHT MOTOR for AIR CONDITIONING

For every unit in any Air Conditioning System—Refrigerator Compressors, Fans, Blowers, Pumps—there's a Century Motor exactly suited to meet ALL the requirements of the job, as proved in hundreds of thousands of installations in all parts of the world ... Consult Century Engineers ... You are assured of sound recommendations, backed by more than 31 years of knowing how to build motors that "Keep a-Running"—even under severe operating conditions in unfavorable surroundings ... Sizes up to 600 H. P.

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MULTISPEED SQUIRREL CAGE MOTORS

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Bulletin 6-1, p. 11 tells all about Century's Splash Proof Motors—Slip Ring, Flange Mounting and 2-way Ventilation.

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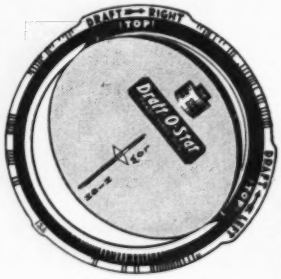

CUTS
Oil Consumption
26%
Coal 31%

We quote below from a letter written to us by The City Contracting Co., New York City.

"We have been called in on two heating installations. One was a two-family brick house with an oil burner, and the other a six-story building, with 30 apartments, using coal for fuel.

"We then installed Draft-O-Stats, and after 60 days operation, we cut the fuel consumption down approximately 26% on the oil burning installation and approximately 31% on the coal."

Practically every furnace and boiler owner is your prospect. Draft-O-Stat is easy to install. Gives you a generous profit. Write for descriptive literature.

Domestic types 6" to 20".
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Listed as standard by Underwriters' Laboratories.

Hotstream Indirect Heaters

Supply hot water at extremely low cost. Easily installed on any type of boiler. Also used for pre-heating fuel oil. A full line of sizes to meet every need.

Write for literature.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat" CLEVELAND, OHIO

3 or 4 months still remain in this season *when householders will depend upon* WATER BACKS *as a hot water source*

The "K-CO" ALL BRASS WATER BACK

—is a real seller. It's made entirely of brass with solid brass plugs and is available for ¾ inch and 1 inch iron pipe.

The ribs of the "K-CO" are designed to quickly generate hot water and eliminate the danger of rib breakage when stoking the fire. It is also free of "pockets" that collect clinkers, soot or dirt and is easily cleaned.

KITSON CO.
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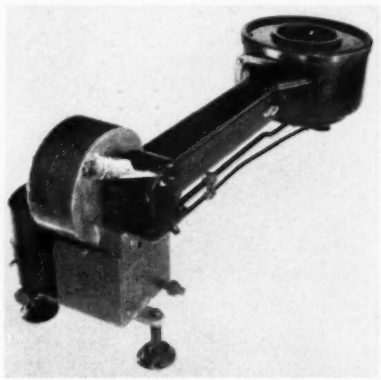
outfit consists essentially of an induction type motor carried on supports designed to be noise absorbing, and a displacement type fan, all of which are controlled by a manually operated pull switch. As auxiliary equipment, a fan switch is available for automatic operation. It works to turn the fan on when sufficient heat is present in the furnace bonnet and to turn it off when the heat drops. This equipment is designed for easy installation. It is manufactured by Universal Blower Co., of Birmingham, Mich.



Oil Burner For Small Homes

The oil burner shown in the accompanying illustration has been placed on the market just recently for use in small homes which have heating requirements up to 1½ gal. of fuel oil per hr. The burner has been designed so as to be adaptable to all types and sizes of homes, small high pressure vertical boilers, and all moderate sized heating plants. It is rated for use in connection with installations having up to 600 ft. of steam or 960 ft. of hot water radiation. The controls operate on low voltage. The motor is rated at 1/125 h.p. Included in this equipment is a low voltage magnetic safety float valve with two-way levers and mounted on the burner; a low voltage thermostat; a low voltage transformer (20 volt) in the blower housing; a low voltage boiler control; an oil valve adjustment; an air adjustment; a gas pilot designed to be self-regulating and a blower. The fuel oil flows to the burner by gravity through the safety flow magnetic valve. The Peoples Utility Co., 466 W. Superior St., Chicago, Ill., is the manufacturer.

Oil Sales—

(Continued from Page 63)

The recession in June and July also probably has two explanations. First, business in general started downward about that time, and, second, the industry probably *had* shot the works in the early spring and was catching its breath for a new drive.

That the latter is the more likely explanation is indicated by the fact that boiler burner unit shipments (see chart in Fig. (3) showed a steady upward trend during

these months and also by the fact that all oil burner shipments resumed their upward trend before general business recovered and even before the FHA was launched.

The general business recovery and the FHA are undoubtedly the factors that are mainly responsible for the steady upward trend since early September.

The experience of the oil burner industry in 1934 shows quite clearly that although the sale of a product may be seasonal, sales, promotional and advertising must be continued with equal intensity the year around. Had this been the case in 1934, undoubtedly sales would have been much larger in the January and February, and June and July periods.

Although the improvement of general business over the past year or so has not yet brought us back to the so called normal, nevertheless, enough of the uncertainty has been removed that there is no longer need for the extreme hesitancy that has characterized sales efforts for the past few years.

The chart in Fig. 2 is a moving total curve which shows quite accurately the general trend of oil burner sales. With this type of chart, the point plotted for each month represents shipments for the twelve-month period ending with that month. In this manner, the seasonal element is eliminated to a large extent. The trend is definitely upward. Hence, with consistent sales, promotional and advertising effort throughout 1935, the oil burner industry can reasonably expect one of the best years in its history.

STOKERS ON UPGRADE IN 1934

During the first eleven months of 1934, there were 19,365 mechanical stokers sold as compared with 13,631 during the same period of 1933.

The breakdown of these figures is as follows:

	First eleven months 1934	First eleven months 1933	% increase 1934 over 1933
Class 1.....	15,024	10,237	47%
Class 2.....	1,637	925	77%
Class 3.....	839	939	11% Decrease
Class 4.....	1,865	1,530	22%

GAS HEATING EQUIPMENT SALES SHOW INCREASE

During the first eleven months of 1934 there were 29,079 gas heating equipment units sold as compared with 28,084 units during the same period of 1933.

The breakdown of these figures is as follows:

Boilers as reported by eight manufacturers.

		% of increase 1934 over 1933
1934—Jan. to Nov., inclusive....	3,739	31.7%
1933—Jan. to Nov., inclusive....	2,837	

Warm air furnaces as reported by twelve manufacturers.

1934—Jan. to Nov., inclusive....	2,503	63.2%
1933—Jan. to Nov., inclusive....	1,301	

Conversion gas burners as reported by fourteen manufacturers.

		% decrease 1934 from 1933
1934—Jan. to Nov., inclusive....	22,837	4.6%
1933—Jan. to Nov., inclusive....	23,946	

You MUST Make Money With Master Kraft

Master Kraft offers the most desirable proposition in the oil burner field. Thirteen models of burners and oil furnaces. A size for every pocketbook. Revolutionary new features. Amazing economy records. Powerful advertising. Thorough factory cooperation. Last year sales doubled. This year they will double again. Get on the preferred list now for advance information on 1935 profit plan. You MUST make money with the Master Kraft franchise. Write us today.

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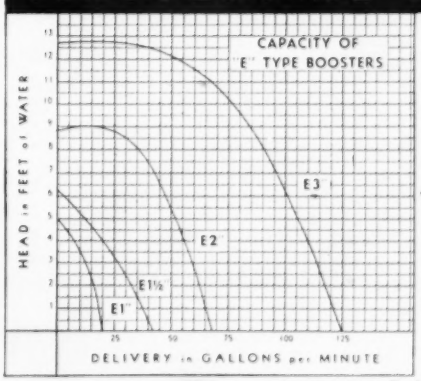

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Compare these B & G Booster capacity curves with those of any other pump designed for the same purpose and you will see why it is no longer good practice to buy pumps by pipe size only. Size for size, the B & G Booster circulates a **greater volume of water** through **a higher Pressure Head** . . . which means that your hot water heating installations can now be designed for smaller pipe sizes and handled with a smaller, more economically operated pump.

B & G Boosters save from 15 to 30% in annual fuel costs when used to improve circulation in hot water Heating Systems. They are sturdily constructed, with two value capacitor, cradled-in-rubber motor—exceedingly quiet in operation. For complete information on the B & G Booster, with typical applications, write for B & G Bulletins B934 and T934.

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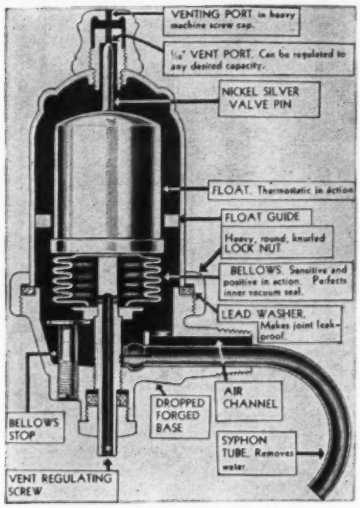
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ACTUATED BY TEMPERATURE . . . NOT TIME

Motors—

(Continued from Page 75)

other features to reduce frictional and other losses to a minimum.

In the laboratory the cells have been connected in parallel when used to operate the motor with incandescent light, and in series when used in sunlight.

The speed at which the motor turns depends on the amount of light received by the cells. Direct sunlight whirls the motor at about 400 revolutions per minute, but even sky light on a cloudy day through a laboratory window is sufficient to turn the motor at a relatively rapid speed.

No practical applications for the sun-driven motor have been undertaken, for its rating of four ten-millionths of a horsepower—which might be likened to one flea-power, or less—is too low to be of immediate practical use. There remain, however, many practical applications of the photoelectric cell itself.

CO_2—

(Continued from Page 72)

changes of temperature while the test is being made. The pipettes are U-shaped, glass vessels and contain chemicals for absorbing the gas constituents. The first contains a caustic potash solution for absorbing the CO_2 while the second contains an alkaline solution of pyrogallic acid for absorbing oxygen and the third an ammo-

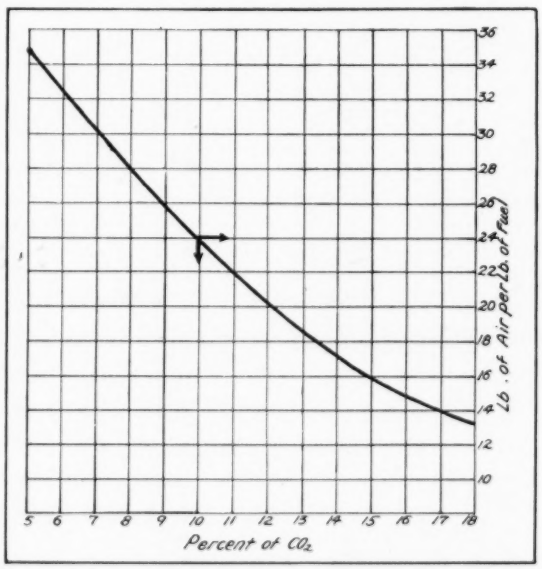

Fig. 6—Curve shows values for per cent of CO_2 plotted against pounds of air per pound of fuel. In other words, the curve shows the pounds of air for any given amount of CO_2

niacal solution of cuprous chloride for absorbing the carbon monoxide. The side of the pipette in which the absorption is to take place is filled with small glass tubes

which increase the surface of the liquid in contact with the gas. As the pyrogallic acid solution and the cuprous chloride solution absorb oxygen very readily, air must be kept from coming into contact with them. Either a rubber bag is placed on the rear of these pipettes or another pipette is used with a water seal.

The manipulation of the Orsat apparatus consists of

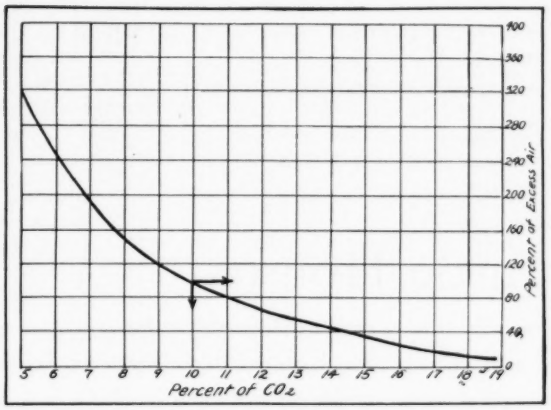

Fig. 7—This curve shows per cent of CO_2 plotted against per cent of excess air

two operations, namely, that of moving the gases into the different parts of the equipment and the measuring of their volumes. The moving of the gases is done by means of the water in the leveling bottle which acts as a piston. After connecting the apparatus to the pipe

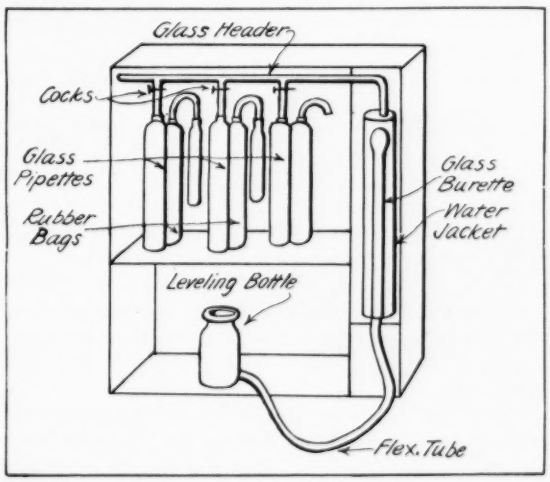

Fig. 8—The general features of portable apparatus for testing flue gases are shown here

from which the sample is to be obtained the leveling bottle is raised and lowered so as to draw in a sample of the gas and the cock in the gas line is then closed and the cock to the atmosphere opened and the first sample rejected. This is repeated three or four times so as to

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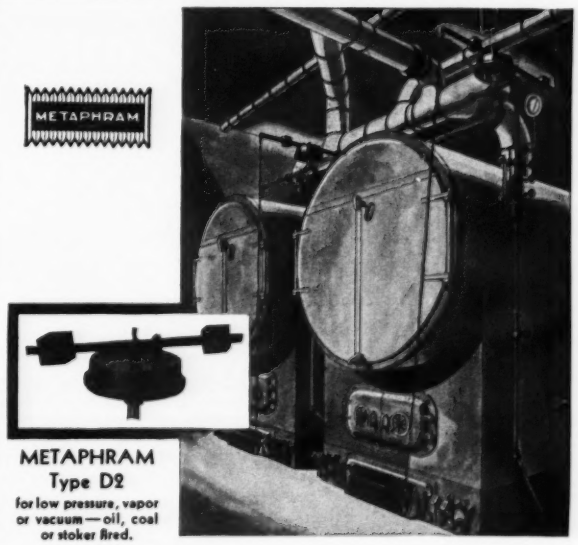

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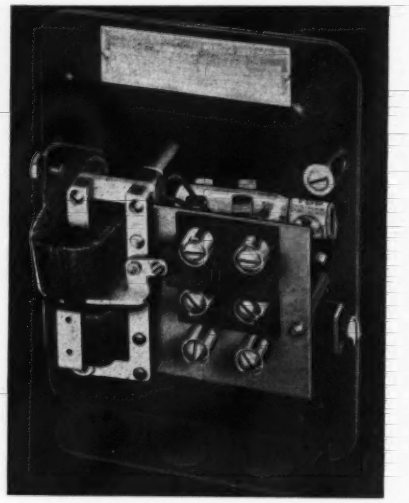

This is not a combination of a separate relay unit and transformer, but a true transformer-relay in which the transformer also functions as a repulsion relay. Its unusual construction and performance makes it the ideal low voltage relay for automatic heating and air conditioning equipment, or wherever dependable remote control is required.

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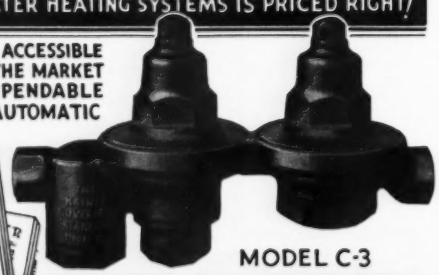

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remove all of the air and residual gas from the apparatus after which the last charge is retained for analysis.

The quantity of gas in the burette is adjusted accurately to 100 cubic centimeters (c.c.) and then the cock on the caustic potash pipette is opened and the leveling bottle is raised, forcing all of the gas into the pipette; the gas is passed back and forth two or three times and then is measured. It should then be passed into the pipette and back into the burette and remeasured to be sure that all of the CO_2 has been absorbed. The difference in the volumes indicates the amount of CO_2 absorbed. The oxygen and carbon monoxide are determined in a similar manner using the other pipettes for this purpose. It is important not to determine the CO reading until the last, that is, after all of the CO_2 and O readings have been made so that these gases will be absorbed.

Little House—

(Continued from Page 69)

means of a duct run from one of the basement windows to the general duct system.

This system of circulation and re-circulation provides the living quarters of the Little House with six complete changes of air per hour. The adjoining broadcasting studio, control room and guest gallery—a special feature of the Little House from which programs are broadcast over the Columbia nationwide network—is provided with 10 changes of air per hour.

The air conditioning system is regulated by a thermostat which maintains an even temperature range, and in controlling the operation of the burner, limits the amount of oil that will be consumed. A fan control prevents the circulation of cool air with the operation of the blowers, should the air temperature in the heating chamber decrease below a given degree.

While the equipment does not de-humidify or chill the air in summer, it gives relative cooling comfort by its circulation of purified air. The windows and doors are closed to prevent the inflow of warm air and to retain the cooler temperature obtained over night. This circulation overcomes heat stratification or "pocketing" of hot air. The cooler basement air is circulated occasionally during the daytime. At night the outdoor air (usually 15 to 20 degrees cooler than day temperature) is introduced through the basement, purified, and circulated to the rooms, thus forcing the warm air up through the house and out of open second floor or attic windows.

In the excavated portion of the basement where duct work is accessible, the air flow to the rooms is balanced by means of quadrant dampers. In the unexcavated portions, where ducts are inaccessible, the air flow to the rooms is controlled by means of lock type dampers in the register boxes.

Dual thermostats were installed, one in the dining room for control of the house temperature and an auxiliary control in the broadcasting studios should a temperature increase be desired at the far point of the distributing system. This thermostat is of the electric clock type to reduce temperatures overnight. An aux-

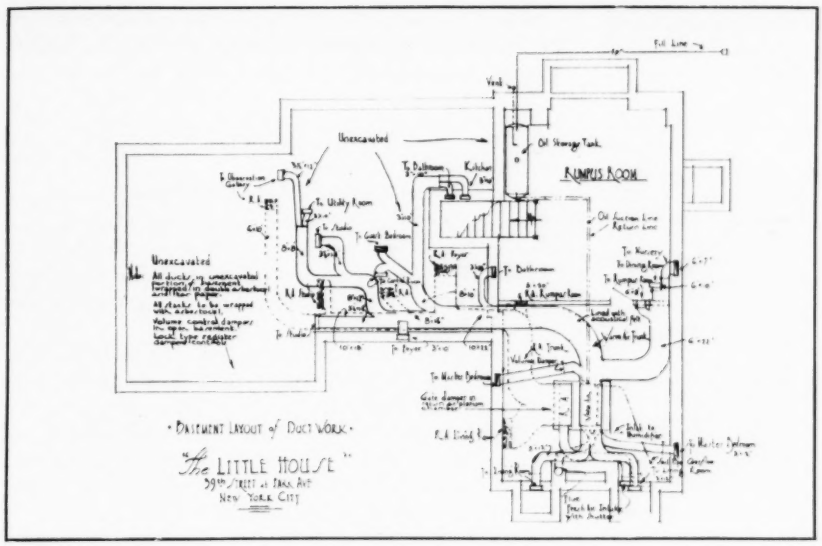


Fig. 8—This plan indicates the arrangement of the air conditioning equipment and ductwork for serving the house. Note the dimensions

iliary fresh air intake with a small 300 c. f. m. blower introduces air directly from outdoors to the studios and control room, with damper control for the regulation of the volume and mixing temperature as desired.

Relative humidity is controlled manually with a valve in the inlet supply to the humidifier.

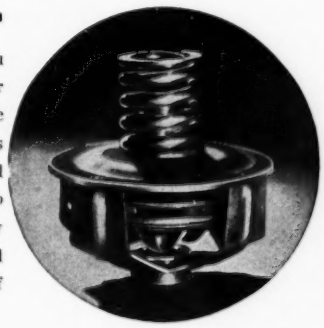
The maximum temperature of the air circulated to the rooms is controlled by an airstat with a maximum of approximately 350 deg. Fahr. This prevents over heating of the air and over running of the burner.

The operation of the blower is controlled to permit their operation only when the air temperature has reached a minimum desired and to cut off at the drop of temperature to this minimum setting, thus preventing the circulation of cool air during the heating demand periods.

A summer or blower switch is used to operate the blowers independently of the burner operation, for the circulation of outside or basement air during non-heating periods.

The 525 c. f. m. velocity of air is introduced to rooms at 6 ft., 6 in. levels. The Btu. required for heating this air to the desired temperature were calculated in order to determine the sizes of ducts and registers necessary to carry and discharge the air into the rooms. The duct areas were calculated to allow for full free areas with a minimum of resistance to the air flow. The rate of air changes were figured for 6 per hour in the house and 10 per hour in the studio. Return air is drawn from several points in the house and studios. The

try this cure for ailing traps....



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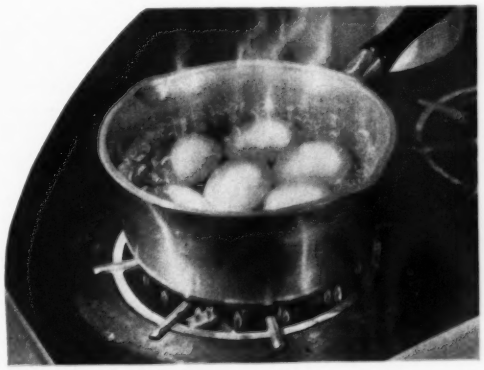

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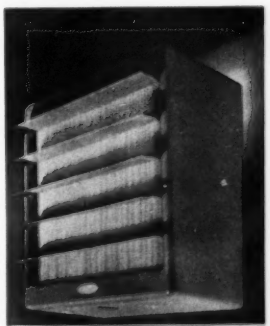

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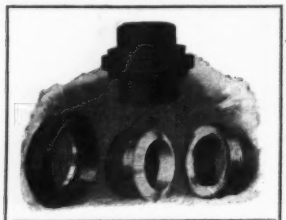

When you take a Dart apart you can see just why these unions assure a long life of trouble-free service. The two bronze seats are ball ground and swedged into tough malleable pipe ends to effect a permanently tight, corrosion free joint.

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The Nu-Way MS-V Model "Genil" is low in price and meets all competitive quality markets.

The Nu-Way MS-V Model "Genil" has a capacity of 200 to 1200 feet of steam. It is attractive in appearance and carries the nationally accepted Nu-Way "Genil" name for quality.

The Nu-Way Corp. also has a complete line of automatic oil burners, hot water heaters and boiler heating units.

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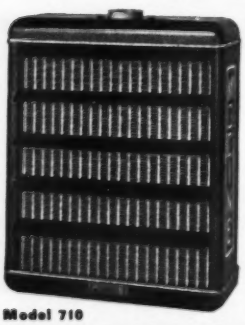

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equivalent area of the return air register is 30 per cent greater than the register openings for the discharge of the air.

Alt—

(Continued from Page 80)

transformed. This is illustrated in Fig. 13. If made shorter the eddy currents, set up in the air by the abrupt change in direction caused by the side, at a sharp angle with the sides of the entering duct, will cause considerable additional friction.

Register outlets are branched from the main duct with an increasing elbow to reduce the velocity in the outlet in the manner shown in Fig. 11. Vanes are often used to distribute the air more or less equally across the register face as shown in Fig. 5, and the outlet velocity, except in cases of high ceilings, usually is kept down to about 250 to 300 f. p. m.

Volume dampers are placed in the duct system so as to control the air flow to each outlet and to each branch

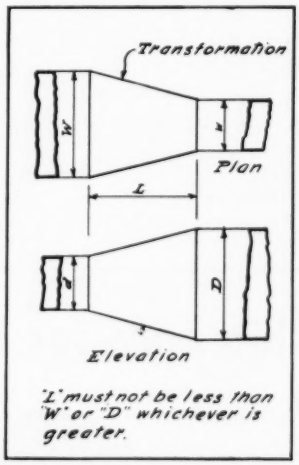


Fig. 13—As indicated here, transformations, if possible, should not be of lesser length than the greatest dimension of the duct transformed

and in this way take up any inequalities in friction which may occur between different parts of the system or inequalities which may be introduced during construction by poor workmanship or by added elbows to clear obstructions not known about when the system was designed. See Fig. 3.

Splitters are used in tight places where branches leave the main line or where registers are located so close to the duct as to make the use of volume dampers impractical. A typical instance of this is given in Fig. 7.

Vanes often are used when the full throat radius of the elbow cannot be obtained and where register outlets make equal distribution across the face desirable; see "Register Outlets" and Fig. 6.

Joints are made in a variety of designs some of which are illustrated in Figs. 9, 10 and 14. The joint should be air tight when completed and should be as cheap and as simple as this consideration will permit.

While in the smaller sizes of ducts the seams, (espe-

cially when made of the "standing seam type) will prove adequate for stiffness. On the larger sized ducts angles either formed of sheet metal or of actual structural steel are used. These also should be galvanized. A test of stiffness often specified is that the ducts shall be able to bear the weight of an ordinary man on top

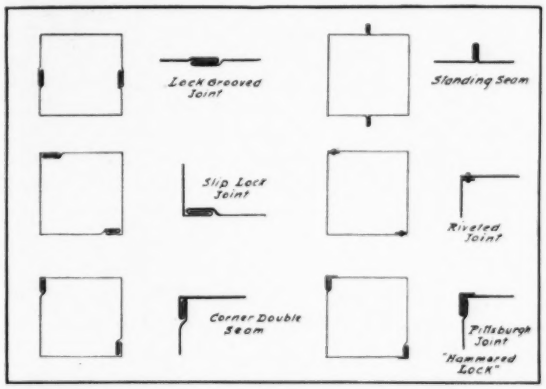


Fig. 14—Here are shown typical joints and reinforcements for ducts

of a plank placed at any point without deflection of a noticeable amount.

The support of ductwork is dependent largely on the construction immediately above the duct and in most fireproof buildings this will be found to be a concrete slab of some type. If the slab is one of considerable thickness, and the difficulty of drilling through the slab is considerable, expansion bolts may be used of ¼ in. to ½ in. size in accordance with the size of the duct and the weight carried. See Fig. 15. Where the slab is comparatively thin and has a finished floor laid on the top of the slab often it is cheaper to drill through

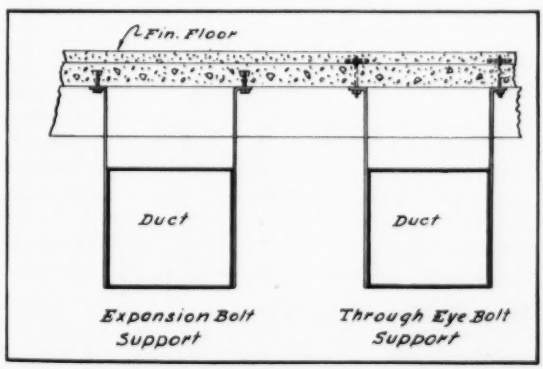
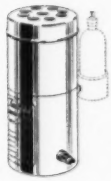


Fig. 15—A method of hanging ducts is illustrated in this elevation

the slab, drop an eye bolt down through the hole and place a short length of ½ in., round rod in the eye to keep the bolt in place until the fill is poured and the bolt becomes concreted into permanent position. See Fig. 15. An ordinary bolt also may be used for this purpose with a 2 in. by 2 in. washer under the head to keep it from slipping down until the fill is put in.

The size of strap used varies from 18 gauge metal about 1½ in. or 2 in. wide, up to $\frac{3}{16}$ in. by 2½ in. flat iron.

HEATING SPECIALTIES THAT PAY



Ol' Faithful Automatic Humidifiers have a ready market in every building heated by vapor or gravity steam. Here's easy profits for you, Mr. Steamfitter, during February. **Price - - - - - $8.50**

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No. 53 WATER-BOY keeps the water pan on a hot water radiator filled automatically. Just what the home-owner has been looking for. **Price (with fittings) $5.00**

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No more air-bound hot water radiators! **No. 200 AUTO-VENT** does the job and assures maximum heating efficiency. **Price - - - - - $3.00**

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No. 85 WATER-BOY answers a growing demand for a water feeder for low pressure steam heating boilers at a price within the reach of all. **Price (with fittings) $7.25**

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IN NO OTHER SINGLE UNIT
do you get all of the
EXCLUSIVE FEATURES
of the
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FOR HOT WATER HEATING SYSTEMS

★ A feed valve, a relief valve, a ball check and screen, a back pressure valve all in one complete unit.

★ Closes by internal pressure—no springs—no sticky valve seats. One pound pressure drop closes valve tightly.

★ May be tested with one thrust of test pin.

★ Screen and feeder may be cleaned or inspected without drawing water from system. Syphoning is positively prevented.

★ Constructed with a point relief, it is extremely sensitive and accurate.

★ Lever at top permits quick filling.

Order CADWELL Control Units—CADWELL Air Valves and PERFECTION Floor and Ceiling Plates from your wholesaler.

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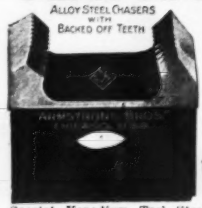

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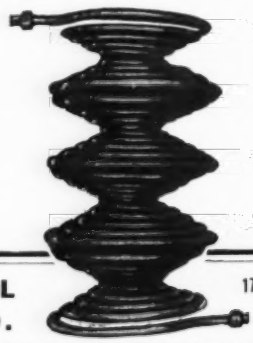

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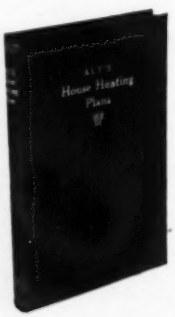
AIR CONDITIONING SIMPLIFIED

A new book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business 216 pages; 5½x8¼, bound in cloth — price postpaid $1.00.

ALT'S HOUSE HEATING PLANS



By Harold L. Alt. Will give the heating contractor the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating equipment has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8½, bound in cloth, price postpaid $1.00.

Book Department
Domestic Engineering, 1900 Prairie Ave., Chicago, Ill.

Forum on Air Conditioning at the David Ranken, Jr., School

A second open forum on Air Conditioning for Comfort is in progress at the David Ranken, Jr., School of Mechanical Trades in a series of seven meetings, held Jan. 14, 21, 28, and to be held Feb. 4, 11, 18, 25, at 8:15 p. m. This school is located at Finney, Newstead, and Cook Avenues, St. Louis, Mo.

The purpose of this forum is for the exposition and free discussion of various phases of Air Conditioning for Comfort. The forum will be free and open to all who are interested. This move represents an endeavor to aid the heating contractor, whether he be in the warm air field or in the piping trades, who recognizes that the present existing heating installations offer a tremendous outlet for better type equipment and air conditioning devices.

Specify Air Conditioning for Low Priced Homes

Most of us have agreed quite readily that air conditioning is rapidly becoming a greater and greater business. However, few of us have probably expected to see air conditioning definitely specified as a positive requirement for lower priced homes. Yet, that has just been done. The representative administration in California is planning to open up new land for 20,000 persons and specifies that these subsistence homesteads must be air conditioned. Since the homes will be built in the Mojave River Valley, the air conditioning system will be a real job to do in meeting the wide swings in temperature.

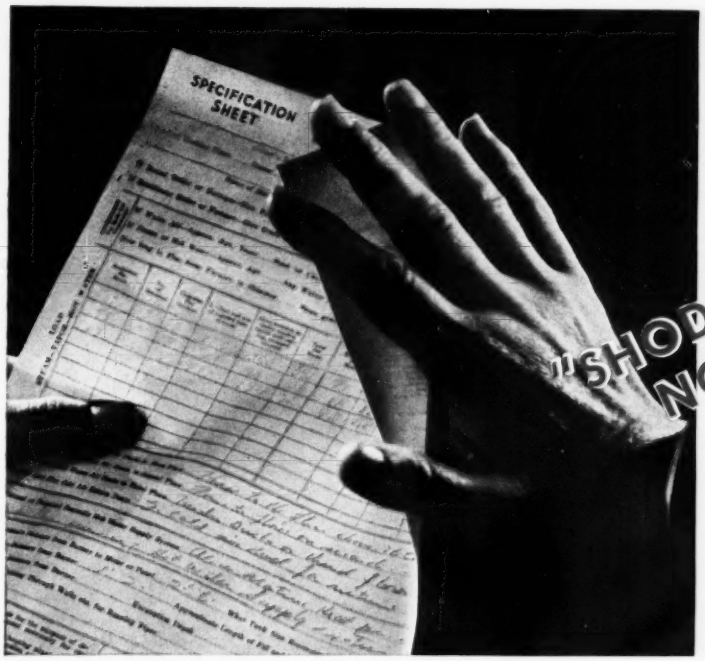
"Air Conditioning at Your Door" is Subject of Radio Talk

"For several years we have been hearing rumors and prophecies about the future of air conditioning," said Bennett Chapple, vice-president of The American Rolling Mill Co. of Middletown, Ohio, recently in a radio talk and he added: "Now it is here; it has arrived with all the vigor and vitality of a young giant just come of age. Just think of it! Air conditioning practice has actually made more progress in 1934 than in all the other years of its history put together. Let's take a quick look around and see what is going on.

"Several leading manufacturers have brought out complete, self-contained units for conditioning the air of entire buildings or individual rooms. These are not seasonal devices, either; they are designed to give complete air-comfort the year round. And look what the railroads are doing . . . why, even now, it is almost impossible to take a long train journey without getting into a Pullman that is flooded with clean, tempered, dust-free air. Our first-class restaurants, hotels, department stores and shops are putting in air conditioning systems and increasing their business because of it.

"Air conditioning is also serving industry. It safeguards materials in processing and increases measurably the efficiency of workers. Hospitals are taking it up, too, for air conditioning is certainly a boon to the sick-room.

"Yes, air conditioning is here. It is America's fastest growing industry, providing new jobs for thousands of men and new markets for many products."



"SHODDY MATERIALS NOT ACCEPTABLE" . . .

says the **F. H. A.**

to seekers of home building loans . . .

NEW STANDARDS OF AMERICAN BUILDING DEMAND HOFFMAN STANDARDS OF QUALITY

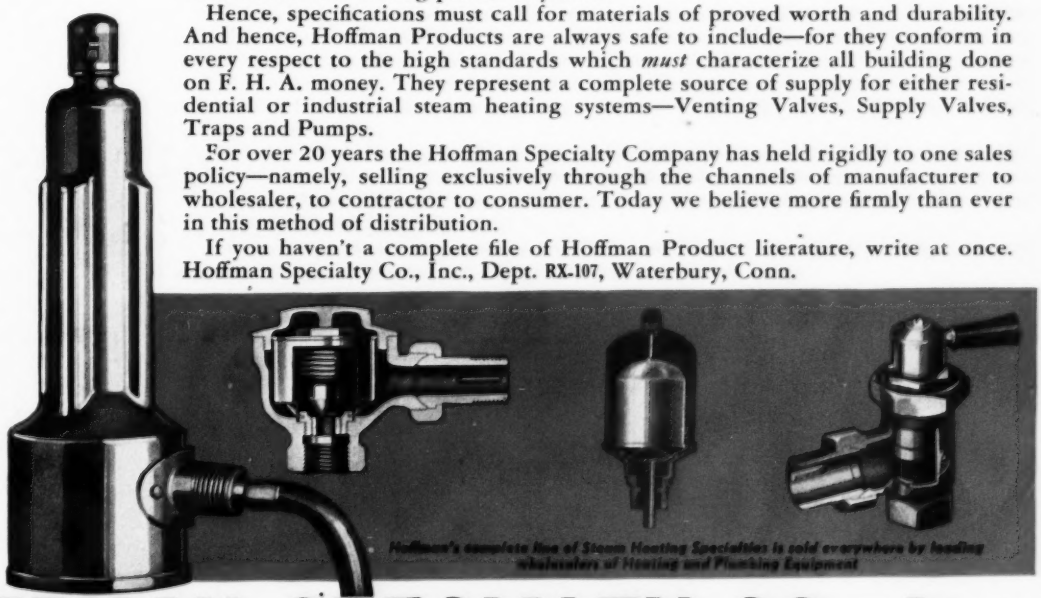
The New-Building Drive is on in earnest! A check-up of contracts actually let and contemplated indicates that mid-summer of 1935 will see the greatest building volume in 10 years.

Not only *increased* building, but *better* building! F. H. A. qualifications for an insured mortgage loan demand a standard of construction that will maintain a resale value over a long period of years.

Hence, specifications must call for materials of proved worth and durability. And hence, Hoffman Products are always safe to include—for they conform in every respect to the high standards which *must* characterize all building done on F. H. A. money. They represent a complete source of supply for either residential or industrial steam heating systems—Venting Valves, Supply Valves, Traps and Pumps.

For over 20 years the Hoffman Specialty Company has held rigidly to one sales policy—namely, selling exclusively through the channels of manufacturer to wholesaler, to contractor to consumer. Today we believe more firmly than ever in this method of distribution.

If you haven't a complete file of Hoffman Product literature, write at once. Hoffman Specialty Co., Inc., Dept. RX-107, Waterbury, Conn.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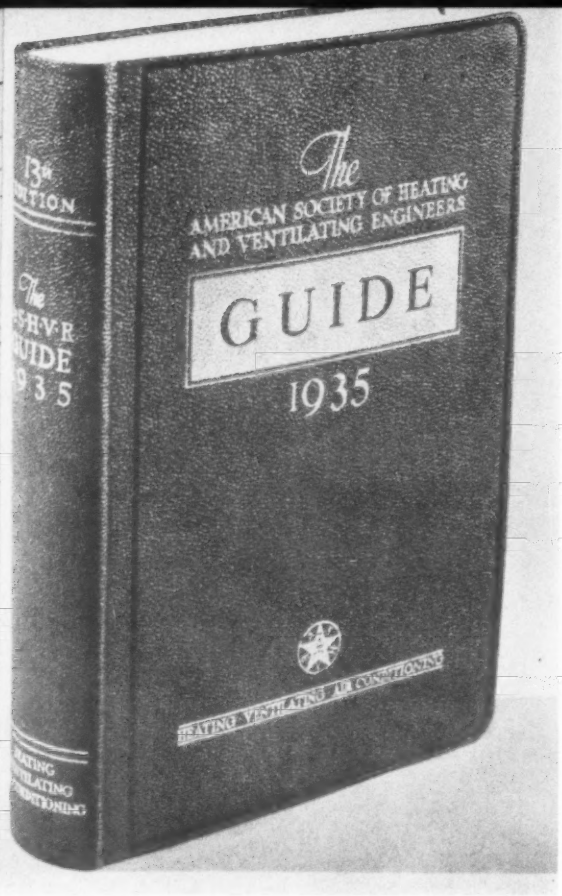

THE GUIDE 1935

for

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AIR CONDITIONING

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Ready for Delivery in February

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6. Air Leakage.
7. Heating Load.
8. Cooling Load.
9. Central Air Conditioning Systems.
10. Cooling Methods.
11. Humidification and Dehumidification.
12. Unit Air Conditioners and Conditioning Systems.
13. Unit Heaters, Ventilators and Coolers.
14. Automatic Control.
15. Air Pollution.
16. Air Cleaning Devices.
17. Fans and Motive Power.
18. Sound Control.
19. Air Distribution.
20. Air Duct Design.
21. Industrial Exhaust Systems.
22. Fan Systems of Heating.
23. Mechanical Warm Air Furnace Systems.
24. Gravity Warm Air Furnace Systems.
25. Boilers.
26. Chimneys and Draft Calculations.
27. Fuels and Combustion.
28. Automatic Fuel Burning Equipment.
29. Fuel Utilization.
30. Radiators and Gravity Convectors.
31. Steam Heating Systems.
32. Piping for Steam Heating Systems.
33. Hot Water Heating Systems and Piping.
34. Pipe, Fittings, Welding.
35. Water Supply Piping.
36. Insulation of Piping.
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38. Radiant Heating.
39. Electrical Heating.
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SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Northern California Wholesalers Conduct NHA Campaign

The Northern California Plumbing and Heating Wholesalers Association, Inc., of San Francisco, Calif., recently started a promotional advertising campaign backing the National Housing Act. In this connection, J. E. Heaslett, secretary-manager of this organization, has been conducting a questionnaire for the purpose of ascertaining business obtained thus far under the National Housing Act.

Under date of January 21, Mr. Heaslett writes "640 questionnaires were sent out, 55, or 8.59 per cent, of which were returned. Of this number, 15 contractors said that they had made no calls whatever. The remaining 40 called on 933 prospects with the following results:

"Immediate work, 85 jobs totaling $11,276.36 for plumbing, and $8,677.50 for heating.

"Promised for a later date—151 jobs totaling $15,897.00 for plumbing and $10,272.00 for heating. A total of 236 jobs amounting to $46,122.86."

In reporting this result, Mr. Heaslett says: "While the number of completed questionnaires returned was small—only 55 out of 640—it shows that those contractors who put forth an adequate effort were well repaid."

Revere Copper and Brass, Inc., Opens Office in St. Louis

Revere Copper and Brass Incorporated has just announced the opening of an office at 1511 Telephone Building, 1010 Pine Street, St. Louis, Mo. The new office will be in charge of Edward A. Harbeck, the company's St. Louis district manager.

Huron Pipe & Supply Company Now Its Name

The Port Huron Plumbing & Heating Supply Company of Port Huron, Mich., has announced that its name has been changed to Huron Pipe & Supply Company. This change is in name only and does not affect the organization in personnel, location or policy.

Open New Sales Office and Warehouse in Long Island City

National Radiator Corporation of Johnstown, Pa., announces the opening of a new sales office and warehouse at 30-20 Thompson Avenue, Long Island City, N. Y. This change represents a consolidation of its present New York warehouses and sales office to better serve the industry in the Metropolitan New York area. Fred R. Dannies and R. A. Schmieker, manager and assistant manager, respectively, will be in charge.

Max D. Rose Elected Vice President of American Radiator Co.

Max D. Rose, eastern sales manager of the American Radiator Company, was recently elected vice-president of that company. Mr. Rose, who was appointed eastern sales manager a year ago, entered the employ of the company in 1906 immediately after his graduation from the University of Chicago.

He was born in Decatur, Mich. After four years of work for the company as a salesman in Chicago and Wisconsin,

Max D. Rose

he became assistant to the manager of the Chicago branch in 1910. Three years later he was made manager of the Denver branch, which position he held until 1918, when he was appointed assistant general manager of sales. In the latter position, which he continued to hold after being made eastern sales manager, he has been in direct charge of the employ of salesmen and has been influential in developing sales training in the company. "Sales training," he contends, "should include not only preparatory training for the new salesman, but a course of education to keep the salesman acquainted with new products, growing sales methods and scientific developments."

He is a member of the Lotus Club, Engineers Club and the University Club of Chicago. Since he first became associated with the company he has represented it in every state in the union, either as salesman, sales supervisor, or as assistant general manager of sales.

General Fittings Company Opens Sales Office in New York City

General Fittings Company of Providence, R. I., has opened an office at Room 816, 33 West 42nd Street, New York City, under the management of Charles J. Arthur, from which point the following selling territory will be covered: New York City, Long Island, nearby suburbs, and New Jersey as far west as, but not including, Trenton.

Other developments in the sales organization of General Fittings Company include the appointment of two representatives in New England and New York State. Horace F. Horton will cover Connecticut, Rhode Island and the eastern part of New York State, while Frank E. Johnson, formerly with The Nye Tool & Machine Works, will cover the remainder of New England and western New York.

Pittsburg Water Heater Co. to Be Reorganized

The Pittsburgh Water Heater Company, Pittsburgh, Pa., is to be reorganized, a bondholders' committee, representing a great majority of outstanding bonds, having submitted to the court a complete plan for the continued operation of this company. The name will be changed to the Pittsburgh Water Heater Corporation. It is said that this is one of the largest corporation reorganizations made to date in Pittsburgh under the new Federal bankruptcy provision.

Promotions in the Inland Supply Co. of Chicago

Harry C. Yelton, president of the Inland Supply Company of Chicago, has just announced two promotions in his company as follows: O. R. Radebaugh has been made secretary and assistant manager, and L. J. Peterson has been placed in charge of the sales work with the trade in Chicago, which was formerly handled by the late E. W. Payne, who died last May.

U. S. Sanitary Mfg. Co's. Chicago Office Moved

United States Sanitary Manufacturing Company of Pittsburgh, Pa., has just announced the removal of its Chicago office to the Railway Exchange Building, at the corner of Michigan Avenue and Jackson Boulevard.

Asbestos Representatives on Pacific Coast Consolidate

The Wayland Company, Ltd., and Western Asbestos Magnesia Company, both of San Francisco, Calif., have been consolidated under the new name of Western Asbestos Company, according to Wm. F. Lane, president. Clark E. Wayland has been elected vice-president but no other changes will be made in personnel, it has been announced. The company office and warehouses are located at 675 Townsend Street, San Francisco. The Western Asbestos Company, the largest distributor of insulating materials on the west coast, represents Johns-Manville Corp., The Celotex Company, Flexcell Manufacturing Company, Cote Manufacturing Company, H-N Valve Company, Cork Insulation Company and The Ric-Will Company.

Pittsburgh Equitable Opens Office in Memphis, Tenn.

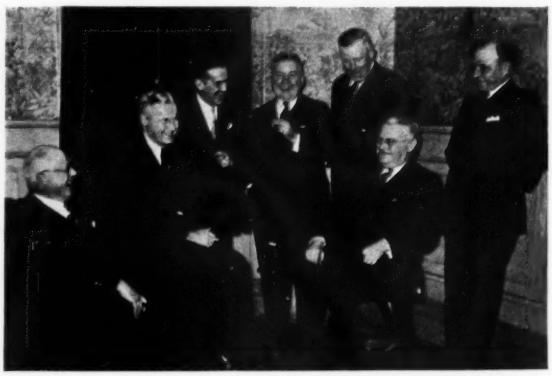
The Pittsburgh Equitable Meter Co. of Pittsburgh, Pa., has opened a new district office at 67 McCall Street, Memphis, Tenn., in charge of Z. A. Stanfield, who will be assisted by J. H. Ferguson. This new office will serve the states of Alabama, Mississippi, Kentucky, Tennessee and portions of Louisiana, Georgia and Florida.

Appointed Sales Representatives in New York, New Jersey and Connecticut

The Cowan Sales Co., 30 Church Street, New York City, has been appointed by Julius Breckwoldt & Son, Inc., of Dolgeville, N. Y., as sales representative for the New York, New Jersey and Connecticut territories. Sidney M. Cowan, sales manager for the Cowan company, was formerly vice-president and eastern sales manager for the Germain Mfg. Co., of Saginaw, Mich.

Kennedy Valve Manufacturing Co. Holds Annual Sales Convention

At the sales convention of the Kennedy Valve Manufacturing Company in Elmira, N. Y., recently, branch managers, salesmen and representatives in attendance were shown this concern's new lines of valves and pipe fittings in course of development and production. They also witnessed a breakage test of a new fire hydrant which demonstrated the safety features and ease of repair of this new equipment.



At the recent sales meeting of the Kennedy Valve Mfg. Co. at Elmira, N. Y.—From left to right: F. J. Henkenius, San Francisco branch manager; Clarence H. Kennedy, vice president and sales manager; R. J. Flanagan, Chicago branch manager; J. S. Hanlon, New York branch manager; W. F. Ward, superintendent of Kennedy Plant No. 2; Matthew E. Kennedy, president, and F. J. Roberts, superintendent of Kennedy Plant No. 1

Parallel with the statements of many prominent manufacturers and wholesalers in our January issue, were the reports of the salesmen which showed a large increase in orders during the latter part of 1934 and an unquestionable indication of improvement in 1935.

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New Prize Contest

$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $

Watch for Complete Details to Be Announced in the March Issue of DOMESTIC ENGINEERING

Birdseye View of the Activities of Plumbing and Heating Industries Bureau

The accompanying chart shows the diversity of the efforts of the Plumbing and Heating Industries Bureau of Chicago, Ill., to keep the products and services of the industry before the public by the utilization of all available publicity media. Many persons do not realize the extent of the Bureau's activities in publicizing the plumbing and heating industry. For instance, a member of one of the associations affiliated with the bureau recently made the following comment: "I have seen many articles on plumbing and heating modernization in the newspapers but didn't realize they came from the Bureau."

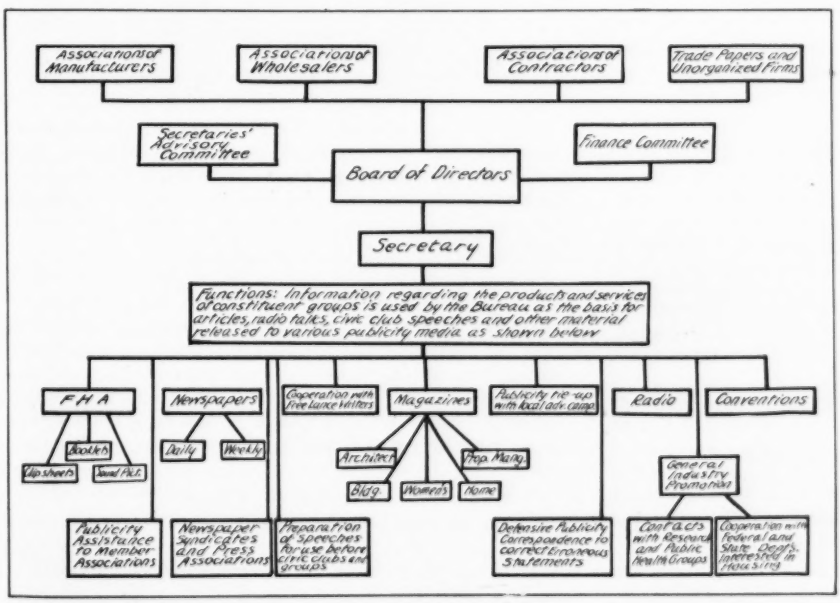
The complete list of associations affiliated with the Bureau and of individual members follows herewith:

A. ASSOCIATION MEMBERS

1. **Manufacturers:**
   - American Gas Association
   - Boiler and Radiator Manufacturers
   - Cast Iron Soil Pipe Association
   - Clay Products Association
   - Copper and Brass Research Association
   - Lead Industries Association
   - National Brass Association
   - Plumbing & Drainage Specialty Manufacturers Association
   - Pressure Pipe Institute
   - Range Boiler Manufacturers Association
   - Sanitary Brass Manufacturers Association
   - Sanitary Cast Iron Enameled Ware Association
   - Sanitary Seat Manufacturers Association
   - Shower Cabinet Manufacturers Association
   - Steel Pipe Manufacturers
   - Vitreous China Plumbing Fixture Association
2. **Wholesalers:**
   - Central Supply Association
   - Eastern Supply Association
   - New York State Association of Wholesalers of Plumbing and Heating Supplies
   - Southern Wholesalers Association
   - Tri-State Plumbing & Heating Supply Wholesalers Association
   - Western Supply Association
3. **Contractors:**
   - Heating, Piping & Air Conditioning Contractors' National Association
   - National Association of Master Plumbers

B. INDIVIDUAL MEMBERS

1. **Trade Papers:**
   - Domestic Engineering
   - Plumbing & Heating Trade Journal
2. **Manufacturers in Unorganized Industries:**
   - International Nickel Company
   - Johns-Manville Sales Corporation


Associations of Manufacturers
Associations of Wholesalers
Associations of Contractors
Trade Papers and Unorganized Firms
Secretaries' Advisory Committee
Finance Committee
Board of Directors
Secretary
Functions: Information regarding the products and services of constituent groups is used by the Bureau as the basis for articles, radio talks, civic club speeches and other material released to various publicity media as shown below
F H A
Newspapers
Cooperation with Five Luxe Writers
Magazines
Publicity tie-up with local dealer groups
Radio
Conventions
Booklets
Dailies
Weeklies
Architectural
Prof. Mang.
Bldg.
Women's
Home
General Industry Promotion
Publicity Assistance to Member Associations
Newspaper Syndicates and Press Associations
Preparation of Speeches for use before civic clubs and groups
Defensive Publicity Correspondence to correct erroneous Statements
Contacts with Research and Public Health Groups
Cooperation with Federal and State Depts. interested in Housing

Organization and Functions of the Plumbing and Heating Industries Bureau

Urge Increase of Modernization Loan Limit to $50,000

Suggestions that Congress increase to $50,000 the limit on modernization loans insured by the Federal Housing Administration were projected into the Second Industry Conference on the National Housing Act at its opening session held January 22 in the hearing room of the Interstate Commerce Commission at Washington, D. C. The present limit is $2,000. The purpose of such increase would be to permit industrial plants, hotels, office buildings and similar large properties to benefit by the modernization and repair features of the act.

The Federal Housing Administration recently sent a questionnaire to 20,000 of the 147,000 manufacturers in the United States and received answers approximating 24 per cent and covering all types of industry. In almost every case a real desire was indicated to modernize and repair, the conference was told.

It was pointed out that the Housing Administration has been allowed $200,000,000 to insure $1,000,000,000 in loans under Title I, and if it insured $500,000,000 in loans it would still not use all of the amount allotted and could utilize the remainder to insure industrial loans of greater amounts. It was declared that such loans would generate a tremendous volume of business.

Administrator James A. Moffett explained that modernization and repair sales schools are to be organized within two or three weeks in twenty-seven key cities throughout the country and asked the assembled manufacturers and industrialists attending the gathering to lend their best speakers and salesmen to the Administration to address these schools. Each school, Mr. Moffett said, will be in the form of a four-lecture course for all building supply and related trades.

Among the representatives of the plumbing and heating industry were: Lewis H. Brown, president, Johns-Manville Corp., New York City; M. J. Beirn, American Radiator Co., New York City; M. G. Crabbs, Philip Carey Co., Cincinnati, Ohio; Russell G. Creviston, Crane Co., Chicago; R. M. Gardner, A. M. Byers Co., Pittsburgh, Pa.; John J. Hall, Standard Sanitary Mfg. Co., New York City; H. T. Richardson, Richardson and Boynton Co., New York City; and J. F. McNamara and Wm. H. Baldwin, International Nickel Co., New York City.

In a Personal Way

HOWARD COONLEY, president of Walworth Company of New York City, was recently re-elected president of the American Standards Association, of which he has been a director since 1928.

A. J. LINDEMANN, one of the founders and president of the A. J. Lindemann-Hoverson Co. of Milwaukee, Wis., has been reappointed employer member of the Milwaukee board of industrial education.

R. E. MOORE has just been elected vice-president in charge of sales of the Bell & Gossett Company, manufacturers of hot water specialties, Chicago. This action by the board of directors is in recognition of the work which Mr. Moore has done for the company in the last few years.

E. A. MULLINS has been appointed New England representative for the Thomas Devlin Manufacturing Co., of Burlington, N. J., and has assumed his new duties with headquarters at 80 Broad St., Boston, Mass.

STANLEY JENKS has resigned from the staff of the Northern Indiana Public Service Company at Hammond, Ind., to become manager of the eastern division of the Bastian-Morley Company of La Porte, Ind., with headquarters in New York City.

ALFRED S. STEIN has just been appointed southern representative for the Central Brass Manufacturing Company of Cleveland, Ohio. His territory consists of the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee.

A. R. SMALL, vice-president of the Underwriters' Laboratories in Chicago, has been unanimously elected president of this organization, succeeding the late Dana Pierce. Mr. Small was born in South Portland, Me., in 1882 and graduated from the University of Maine in 1904 with the degree of bachelor of science in civil engineering. He has been connected with the Underwriters' Laboratories since 1906.

J. A. IVESTER, 82 Bristol Road, Medford, Mass., has been appointed a direct factory representative in the New England territory for Bell & Gossett Company of Chicago.

R. E. MARTIN, 1027 Hunt building, Tulsa, Okla., has been appointed exclusive sales agent for the American District Steam Co. in his state. His line of merchandise will include that company's line of expansion joints, meters, water heaters, steam traps, reducing valves, vapor heating specialties, insulation, etc.

WILLIAM H. HEAGERTY, sales engineer, with offices in the Chandler building, Washington, D. C., has been appointed sales representative by the Gorton Heating Corporation, Cranford, N. J., manufacturer of heating equipment. He will cover the District of Columbia and most of the State of Virginia.

JAMES A. WORSHAM, formerly sectional sales manager for the Williams Oil-O-Matic Heating Corporation of Bloomington, Ill., has been appointed general sales manager of the Decatur Pump Company, Decatur, Ill. In his connection with the Williams Oil-O-Matic Heating Corp., Mr. Worsham was in charge of sales for the western half of the United States and most of Canada. Mr. Worsham has written magazines articles on business topics and he is also a public speaker on business subjects.—B. F. TEMPLETON, formerly general sales manager of the Decatur Pump Company, has been placed in charge of the eastern territory.

FRANK C. HACKETT, chief clerk to the administrator for the construction industry code authority, Washington, D. C., was married on Thanksgiving Day. He is the son of Charles P. Hackett who is with the Pierce, Butler & Pierce Mfg. Corp., at Philadelphia, as manager, and also the nephew of Frank B. Hackett, manager of the seat division of the Brunswick-Balke-Collender Co., at Chicago. The new bridegroom spent several years as salesman for the Brunswick-Balke-Collender Co. in Chicago, Iowa, and New York City. Following this he went to Washington as city salesman for the Pennsylvania Building Supply Co. After a year in this position, he became identified with the code authority in his present position.

Obituaries

Louis J. Campbell

Louis J. Campbell, only son of the late James A. Campbell, former president of the Youngstown Sheet & Tube Co., died January 6th at the Youngstown hospital after a long illness. Mr. Campbell was born in Youngstown in 1885. Following his graduation from Yale he became assistant to his father in the direction of the Youngstown Sheet & Tube Co. and was later made treasurer of this concern. Still later he was made vice-president of the company, an office from which he resigned in 1930 to organize the Electric Alloy Steel Co. at Dunkirk, N. Y. His widow and two daughters survive him.

F. D. Griffiths

F. D. Griffiths, who has represented the Somerville Iron Works of Somerville, N. J., in Metropolitan New York since 1925, passed away at his home in New York City on January 1st from an attack of pneumonia in his 51st year. Mr. Griffiths was connected with the sales department of the Central Foundry Co. of New York City prior to his association with the Somerville Iron Works. His wife and two children survive him.

Dana Pierce

Dana Pierce, president of the Underwriters' Laboratories in Chicago, died recently of a heart attack while in Atlantic City. He was in his 64th year. He was graduated from Amherst College in 1892, and served two terms as president of the National Fire Prevention Association. He was active in the organization of the American Standards Association. His widow and a stepson survive him.

Walter Otis Krebs

Walter Otis Krebs, engineer in the research department of the Youngstown Sheet and Tube Co. of Youngstown, Ohio, died at his home in that city on January 6th in his 30th year. Mr. Krebs had been connected with this company's research department for 5 years. He was a graduate of Carnegie Institute and Yale College.

Vilhelm Meyer

Vilhelm Meyer, representative in Shanghai, China, for American Radiator Co., General Electric Co., and Worthington Pump & Machinery Co., died January 8th at his home in that city in his 57th year. Mr. Meyer was president of Anderson, Meyer & Co. in Shanghai, and he was an authority on international trade. He was a native of Denmark.

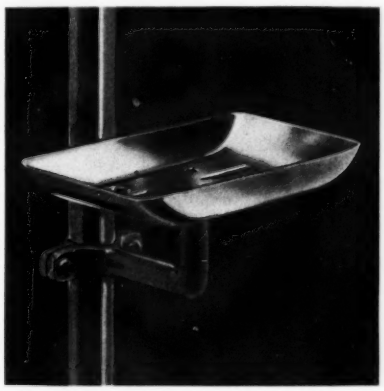
George F. Lutz

George F. Lutz, Chicago representative for the W. A. Case & Son Mfg. Co. of Buffalo, N. Y., for many years, died at his home in Oak Park, Ill., on Thursday, January 24th, in his 58th year. Mr. Lutz had a large circle of friends and acquaintances in the trade, particularly in the Middle West.

NEW STORE·SHOP *and* JOB ITEMS

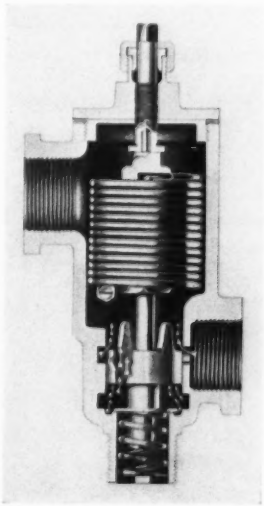
New Attachable Soap Dish

The soap dish shown in the accompanying illustration has been placed on the market with the idea of providing a soap receptacle in out of the way places, such as showers, laundries, etc. It is designed to be attachable to any vertical half-inch pipe by means of a two-part clamp, held securely in place by two screws. The attachment is described as being all metal, the soap dish proper being 3¼ in. by 5½ in. in size. It is designed without internal corners so that it may be cleaned easily. It is ribbed at the bottom and holes are provided for drainage. It is made so as to be removable from the arm. The entire fixture is chromium plated. The Chicago Faucet Company, 2712 N. Crawford Ave., Chicago, Ill., is the manufacturer.



A New Tempering Valve

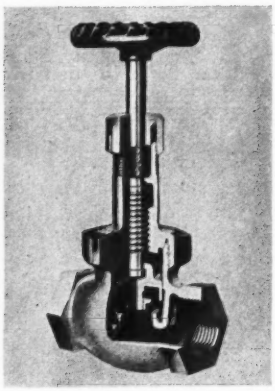
The tempering valve, shown in the accompanying illustration, has just been placed on the market. A thermostatic element located in the mixing chamber of the valve, is designed to control the amount of cold water necessary to temper the hot water supply to the desired temperature. The thermostat is of the solid filled liquid expanding type, and is described as being capable of exerting ample power to operate the valve controlling the hot and cold water ports. It is said to be of simple, rugged construction, all parts being of brass or copper. The valve body consists of a heavy brass casting, which is machined and tested. A temperature adjustment is provided. The specifications for this coil are that it must be of sufficient capacity to deliver hot water to the valve higher than 140 deg. Fahr. Changes in the output temperature may be made by turning the adjustment stem in a clock-wise direction for lower temperatures and counter-clock-wise for higher temperatures. The design is such that not more than one-half turn on the adjustment screw should be made at one time. Sufficient time should be allowed between each change in adjustment to allow conditions to become stabilized. The temperature range is from 135 deg. Fahr. to 180 deg. Fahr. Taco Heaters, Inc., 342 Madison Ave., New York City, is the manufacturer.



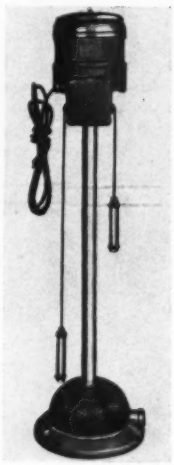
A Line of Valves Announced

A new line of renewable bronze, angle and globe valves, illustrated in the accompanying view, just recently has been announced. Some of the features listed in favor of these valves are as follows: The radial seat between the body and the bonnet is made to insure a tight joint and a perfect alignment of all of the parts with the idea of decreasing wear. This seat is drawn to a tight joint by the union nut in such a way as to eliminate sliding or scraping the surface of the seat. The disc ring is made so as to serve not only in the control of steam, but also in the control of hot and cold water. It is composed of what is described as long fibre asbestos. The disc holder is of standard dimensions so as to permit the use of other standard makes of disc rings if desired. The stem is of rolled rod bronze. The design has been worked out so that at least five threads are in contact with the bonnet at all times. The union nut is of bronze with large hexes designed to provide a firm wrench grip to permit the removal of the bonnet with a minimum amount of risk of damage. The top seat above the threads on the step is protected and is made to give maximum assurance of a

clean and tight joint when the valve is fully opened for the purpose of repacking the valve under pressure. The hand wheel is designed for a cool grip and the bronze nut holding the wheel is placed below the wheel rim surface for



the purpose of protecting the hand. All parts of the globe and angle valves are made interchangeable. The Fairbanks Company, located at 393 Lafayette St., New York, is the manufacturer.

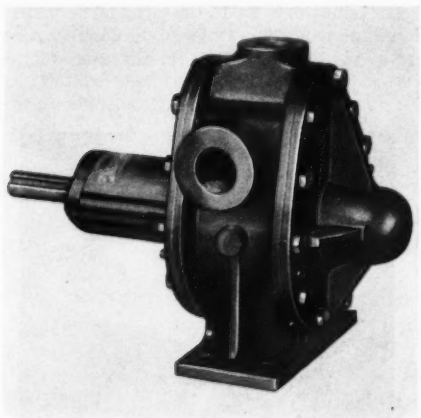


New Electric Sump Pump

A new electric sump pump has been placed on the market. It is designed so that when the water reaches the higher of two electrodes, it closes a circuit and the pump starts to operate, thus continuing until the water falls below the level of the lower electrode. This equipment has been designed so as to be positive in its action. Also, it is made so that water can be pumped to within 3 in. of the bottom of the pit. The motor has been built for vertical operation and provisions are included in it to prevent radio interference. A circuit breaker is incorporated with the electrical control device as an assurance against injuries from motor overload. Bronze construction is used. The impeller is rated at 1750 r. p. m. and the shaft is made to turn in sleeve bearings. Adjustable pivot bearings on the impeller are designed to reduce wear. The strainer area is designed for large capacity. Also, it is made so as to prevent foreign matter from entering the pump. The strainer can be raised to the top of the shaft for convenience in cleaning. The Imperial Brass Mfg. Co., of 1200 W. Harrison St., Chicago, Ill., is the maker.

Rotary Pump Announced

Here is a rotary pump which is described as being designed to operate on a positive displacement principle. It is stated that friction is reduced in this pump by eliminating all sliding and grinding movements on both the rotor and cylinder and substituting therefor a rolling movement. The pump is described as being self-priming up to a suction lift of 22 ft. and is rated as being able to produce, on water, a dead end vacuum of 29 in. at a 30 in. barometer reading. The displacement mechanism consists of two members, a rotor keyed to the shaft and a free rolling roller or abutment placed on top of the motor. This pump is designed to operate on non-lubricant liquids up to a maximum of 100 lb. pressure. The speed recommended is 275 to 300 r. p. m. Anderson Rotary Pump Co., 120 Liberty Street, New York City, is the manufacturer.



Heavily Coated Welding Electrode Announced

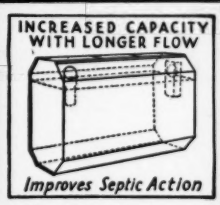
A new heavily-coated arc-welding electrode, for the economical production of high-speed, high-quality welds in the flat position, has just been placed on the market. This electrode is designed to be suitable for either manual or automatic arc welding and will produce equally good results on either alternating or direct current. It is described as being able to operate at relatively high speeds, in larger diameters (¼, 5/32 and ⅜ in.) and higher current values than those commonly in use. Another economy-promoting characteristic claimed for it is the fact that it welds fuse uniformly with the side walls of the joint—thus saving the time and labor ordinarily spent in chipping out slag from pockets at the line of fusion.

Welds made with the new electrode are said to be smooth, of good appearance, and to possess exceptional tensile strength, density, ductility, and resistance to impact and corrosion. These electrodes are recommended for the fabrication of pressure vessels, pipe, machinery, and all types of joints where welding can be carried out in the flat position. The General Electric Company, located at Schenectady, N. Y., is the manufacturer.

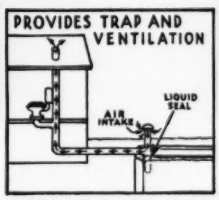
New Top Intake on the

MASTER SEPTIC TANK

Means Fewer Trouble Jobs

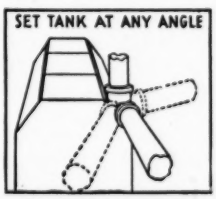


The horizontal type construction provides a longer flow for sewage within the tank—permitting thorough digestion and settling out of solids. Less suspended solid particles to clog drainage and a safer effluent.



The intake T extends above ground to provide a fresh air intake to the house stack. It also extends below the liquid level in the tank to seal the line against escaping gases. No other trap or vent is required.

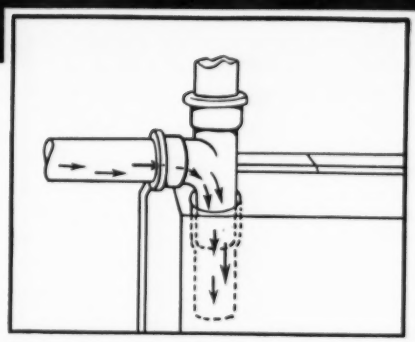
Excavation for the Master Septic Tank is but slightly larger than the tank itself. Thus installation is much easier and more economical than for a tank where lack of shovel room makes extra digging necessary.



Use of T-type intake allows tank to be set at any angle to house line. This simplifies installation where the space available or slope of ground limits location of tank and drainage field.

The intake extension above ground marks the tank location and also provides access to the intake baffle without digging. For inspection of the tank the sectional cover is easily removed without uncovering entire tank.

SEWAGE enters the Master Septic Tank at the top with enough force to keep the intake clear—but without disturbing or agitating the contents of the tank. This effectively reduces the possibility of a clogged intake. The result is greater freedom from service interruptions—fewer trouble jobs. And this top intake does *not* require a deeper excavation.



Arrows show the flow of sewage into the Master Septic Tank through the top intake. Opening is designed to take a standard sanitary T fitting.

This is only one of many exclusive features that have made the San-Equip Master Tank easier to sell, install and service. Others are illustrated on this page. These features are found in no other tank. Cut-price competition can't offer anything like them. Sell Master Septic Tanks and you overcome chiseling competition—you make and keep the profit you deserve. This tank, the result of long and successful experience in the manufacture of sewage disposal systems, has been tested and proved in actual use.

Ask your jobber to show you this tank. Write us for further information. Get your share of the profits this new San-Equip Master Tank is bringing to plumbing contractors throughout the country.

SAN-EQUIP INC.
502 E. Brighton Ave., Syracuse, N. Y.

San-Equip

Sewage Disposal

Sold only through the Plumbing Trade

THE TRADE

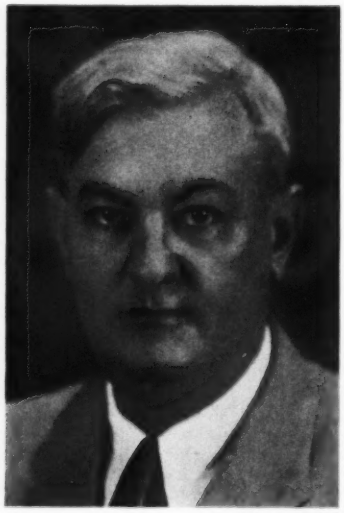
News of what plumbing and heating contractors are doing the country over

President John J. Calnan Announces Dates for 53rd Annual Convention

President John J. Calnan of the National Association of Master Plumbers has just announced that this organization will hold its fifty-third annual convention in Chicago on June 25, 26 and 27, with headquarters at the Stevens Hotel. Arrangements will be made to hold an exposition of modern plumbing, heating and kindred products in connection with the convention, and efforts will be made to make it more elaborate and up to date than any held so far under the auspices of the National Association. It is also hoped that the convention will be the most successful in the history of the Association.

Chas. J. Ormond Succeeds the Late R. G. Thomas As N. A. M. P. Director

Charles J. Ormond has been appointed as a director of the National Association of Master Plumbers by President John J. Calnan. Mr. Ormond has been appointed to fill the unexpired term of R. G. Thomas of San Antonio, who died Nov. 24.



Charles J. Ormond

Mr. Ormond, who is now president of the Associated Master Plumbers of Texas, Inc., will have the states of Texas, Louisiana, Mississippi and New Mexico under his supervision.

A. S. S. E. Plans Convention in New York

The annual convention of the American Society of Sanitary Engineering, according to present plans, will be held in New York City in August. Definite decision will be made at a meeting of officers in March.

Missouri Will Hold Convention in April

The Missouri State Association of Master Plumbers, according to President Joseph Levene, will hold its annual convention in Kansas City, April 29 and 30.

Oklahoma Master Plumbers Elect Officers

The Master Plumbers' Association of Oklahoma City, Okla., at its recent annual meeting, elected the following officers for 1935: President, A. M. Bateman; vice-president, Henry Kaiser, and treasurer, A. H. Moore. The board of directors consists of the new officers and Walter M. Reeves, John Leder, Ed. Wilderman, R. M. Wolfe and Ralph Morris.

Massachusetts Master Plumbers Attend Public Hearing on NRA Code

The Massachusetts State Association of Master Plumbers under date of January 18th issued notice to the effect that a public hearing will be conducted by the National Industrial Recovery Board, beginning 10 a. m., January 25th, in the Salon of the Copley Plaza Hotel, Boston, and continue until completed, to determine if provisions of the Code of Fair Competition for the Plumbing Contracting Industry impose undue hardship upon employers or employees or upon both in that locality, so that it may grant such stay of, or exemption from, the provisions within that locality as it may determine to be necessary in order to effectuate the policies of the National Industrial Recovery Act.

St. Louis Installs New Officers

Installation of the new officers of the Contracting Plumbers Association, Inc., of St. Louis, Mo., was held Monday, January 14, at the Hotel Chase in that city. The meeting was well attended and was marked by the success which has attended St. Louis installations for many years.

The new officers are D. C. Cunningham, president; Roger E. Jarvis, vice president; Henry Bartosch, re-elected treasurer; Samuel Burman, secretary; directors, R. C. Hunt, retiring president, Charles E. Burgess, F. J. Timmerman and Harry F. Clucas, together with the officers.

Jere Sheehan, past national president, was toastmaster. Charles E. Gawne of Chicago, national secretary, represented National President John J. Calnan. Henry P. Reger, president of the Illinois association, represented that state. Ex-Judge John W. Calhoun made the principal address. John H. Weiler was chairman of the entertainment committee which successfully handled the entertainment features and the banquet.

N. J. Acting Governor Abolishes State Recovery Administration

On the last day of his term as acting governor of the State of New Jersey, Clifford R. Powell, republican, of Burlington, abolished the State Recovery Administration, pointing out that it was detrimental to the interests of the small business man. He cancelled all levies and unpaid assessments of the organization. This administrative machinery, according to New Jersey press statements, was costing about twenty industries $750,000 a year.

Magistrate Dismisses Case Against Plumber Who Failed to File Bids

In a recent decision Magistrate Brodsky of New York City stated there was no specific authority in the Code granting permission to charge the $1.00 filing fee imposed on all plumbers. Furthermore, he declared this to be a hardship and dismissed the case of the plumber who pleaded guilty of not filing bids because he was unable to pay the fee.

Prosecution of members failing to file bids is being continued by the New York City Code Compliance Committee which was appointed by the Divisional Code Authority for the 28th Zone, Plumbing Contracting Division of the Construction Industry. They refuse to close the case of which the Magistrate's decision was a result, pending conference with the NRA officials as to whether or not an appeal will be made.

Jacob Stockinger, Jr., of Queens is chairman of this divisional Code Authority.

Manhattan Master Plumbers Elect Officers

The Manhattan Branch Association of Master Plumbers of New York City recently elected the following officers for the ensuing year: President, Joseph F. Heck; vice-president, Herbert A. Halloran; treasurer, Robert A. Higgins; secretary, Herbert Smith; sergeant-at-arms, Benjamin Fassler. Trustees: Samuel L. Snyder, Richard Anderson and Henry Berg. This branch association's headquarters are located at 136 East 30th street, New York City.

The Activities of the N. A. M. P.

By John J. Calnan of Chicago
President of the National Association of Master Plumbers

WITHOUT going into lengthy details concerning the work of the National Association, I will outline briefly the principal activities in which we are engaged in our efforts to promote the interest and welfare of our industry.

Our code of fair competition became effective on May 15th, 1934. Since that time constant efforts have been made both by our National Association and the Divisional Code Authority to secure compliance. Many problems have arisen in connection with the operation of the code, particularly with reference to the enforcement of the minimum wage scale. In a number of localities, especially in the smaller towns, this has worked a hardship on some of our members. However, as our past National President and Executive Director of the Code Authority, R. J. Barrett, has accepted an invitation from your officers to speak on the subject of the code, I shall not attempt to make any detailed comment, except to say that the results obtained from the code materially affects the membership of the National Association.

CURRENT N. A. M. P. PROGRAM

After assuming office, in addition to routine activities, I proposed several simple objectives which I felt would enhance the value and usefulness of our National Association. These were:

1. To secure adequate plumbing ordinance and license laws, where they didn't exist; and improving those laws now in effect.
2. To secure the full enforcement of existing laws and ordinances.
3. The formation and functioning of state and local conference committees.
4. The correction of the evils of our distribution system.
5. Technical research and the dissemination of technical information to our membership.

All of our committees co-operating with this program have been working zealously, and I feel with good results. This includes the Apprenticeship committee; the Conference committee, of which Henry O'Callaghan of Chicago is chairman; the Sanitary committee; the Scholarship committee, and the Plumbing and Heating Industries' Bureau committee, on which Bureau I have been serving as the vice president.

PUBLIC HEALTH AND MASTER PLUMBER

You are familiar with the amebic dysentery outbreak in Chicago during the first year of the World's Fair in 1933. The principal interest of our industry in this subject is the fact that a committee of eminent physicians and engineers, invited by Dr. Herman N. Bundesen, president of the Chicago board of health, assisted by Joel I. Connolly, chief of the bureau of engineering and public health definitely established that defective and antiquated plumbing was the cause of the outbreak. In appreciation of his distinguished services in the cause of sanitary plumbing, Dr. Bundesen has been proposed for honorary membership in the National Association of Master Plumbers. This epidemic has proven to physicians and health authorities that sanitary plumbing bears an intimate relationship to public health, and it has proven to us that our insistence that the installation and sale of plumbing materials be strictly observed, is well founded.

Undoubtedly there are thousands of plumbing installations throughout the country that still offer great potential danger, and from which a similar unfortunate happening may reoccur. The National Association, therefore, recommends that the members of our affiliated Associations take advantage of the publicity material that we have concerning this subject and distribute it freely with a view towards eliminating health hazards.

While it is true that the vast majority of the population are living in communities covered by local laws and ordinances, in many instances these are of long standing and

Presented at the annual convention of the Illinois Master Plumbers Association, Jan. 22.

have become antiquated and obsolete. The National Association, through its Sanitary Committee, will be glad to aid associations or individuals who desire to sponsor local ordinances. We will furnish a recommended procedure to follow, and also with the text of the proper type of law or ordinance suited to local conditions.

In the past few years there has been a disposition on the part of boards of health and plumbing inspectors under a misguided opinion that they were helping the unemployed, to relax rigid safeguards thrown about the plumbing industry and the installation of plumbing it handles, with a resulting break-down in law enforcement. We should advocate the enforcement of existing laws and ordinances, as well as do what we can to modernize such statutes. In connection with revising present ordinances and laws, I desire to call your particular attention to a model ordinance that has been developed by your National Association that was first brought to the attention of the members in the September Bulletin. This suggested model ordinance was evolved from a similar ordinance that has been in effect for some time in Birmingham, Alabama, and which was originally conceived by the president of the Alabama Association, Joseph W. Pate.

The effect of this ordinance is to regulate the sale of plumbing fixtures and protect the public against hazardous practices that are followed by some of the direct-to-you companies and others who distribute an inferior class of merchandise. The sanitary or legislative committee of every association would do well to take immediate steps to endorse and actively endeavor to secure the passage of this model ordinance.

Effective work is carried on by our Standardization committee. This committee, under the chairmanship of Jere L. Murphy of New York City, during the years 1932-1933 undertook the writing of a sanitary plumbing code. This code was presented and adopted at our New Orleans convention in June, 1933. It is the standard code that our association is promoting. Just one instance of the popular recognition of our code is found in its recent adoption as the alternate standard of the Home Owners Loan Corporation, which is a division of the federal government.

RESEARCH IN OUR INDUSTRY

While the plumbing industry has long portrayed itself as the guardian of public health, until recently the argument that they are such guardians has rested on the statement rather than on supporting evidence. The very fact that the public does not believe that the plumbing profession is akin to that of the medical profession, is the best proof that can be adduced that our arguments have not been effective. In the course of securing scientific data, negotiations are now under way for the formation of a joint committee composed of members of the N. A. M. P., the American Medical Association, and the American Public Health Association. Their object will be a study of public health in its relation to plumbing. It goes without saying that the high character of this committee will lend weight to its findings.

As this contemplated program represents long time planning, we have not given any publicity to this movement, and this brief mention is made simply for the purpose of acquainting the membership with the fact that this necessary adjunct to our argument about protecting the public health has not been overlooked, but is being worked on. This work is creating a great deal of interest in several localities, particularly in Chicago where a committee of the Plumbing Contractors' Association of Chicago and the Chicago Journeymen Plumbers' Association are doing some excellent work in laboratory tests. This committee is acting in an advisory capacity to the health department through the associations.

After the results of the committee's tests are known and published, and their recommendations are approved by the Health Department, along with other tests which may be made in certain phases of our business, they will be coordinated with the broad program on research that has been undertaken by the National Association.

PUBLIC UTILITIES PROGRAM

For a number of years attempts have been made to develop a uniform plan of co-operation between gas utilities and local master plumbers' associations, whereby master plumbers should be assured of fair competition in the sale of appliances, and that installations would be made exclusively by master plumbers. During these years an increasing number of arrangements have been effected governing local territories, but they have been lacking in uniformity on a national basis, and in many cases have been unsatisfactory in actual operation.

Encouraged by the present attitude of the gas industry as reflected in their last annual convention, and in response to a proffer on the part of the American Gas Association for the development of a plan of co-operation, the N. A. M. P. has addressed a questionnaire to all local associations asking that they set forth in some detail the present status of relations between the utilities and the master plumber, and make suggestions as to preferable arrangements. On the basis of returns from these questionnaires, it is believed that the N. A. M. P. will be able to develop a national program which will be beneficial to the master plumber, and which will allay the present friction between the gas utilities and our membership.

MAIL ORDER HOUSE COMPETITION

Many members of the N. A. M. P. believed that when we secured our code of fair competition the difficulties resulting from mail order house competition would be completely eradicated, and they were disappointed when these results were not evident.

An intermittent struggle has been going on between the Divisional Code Authority and the Mail Order Association of America over a period of months in an attempt to bring the sale of plumbing products and their installation, no matter through what means, under the provisions of our code. While present status of the negotiations would seem to indicate that little hope can be held out insofar as the sale of plumbing fixtures is concerned, it is believed that the mail order houses will have to comply with the code in the installation of such products, regardless of the subterfuges employed by them to evade its provisions.

With reference to the question of the mail order houses in the high councils of the N. R. A., a circular letter has been mailed to all associations on this subject, with the request that associations and individuals who feel so inclined, should make written protests to the N. R. A. on the ground that it is impossible for an active employee of a mail order house to give impartial consideration to problems which come before him in his capacity as an N. R. A. executive. If the response from the membership is sufficiently strong, we believe that this mail order influence can be removed, or neutralized, and our members therefore are urged to comply with this suggestion.

CONFERENCE COMMITTEES

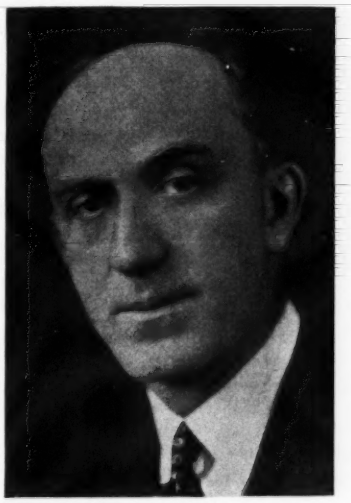
One of my objectives is the strengthening of the national Conference committee, and the establishment of state and local conference committees under the leadership of the national Conference committee. This plan has met with excellent results in areas where recommendations have been followed.

The purpose of these conference committees is to localize

the effects of national policies insofar as they relate to the relationship between wholesalers and master plumbers in a given area.

While the national Conference committee is negotiating with manufacturers with reference to national distribution, it has been found necessary to step the policies down to local areas so that the membership may participate in the benefits secured nationally. The change in price policy of the leading manufacturers is one of the accomplishments of the national Conference committee in co-operation with manufacturers desiring to perpetuate the manufacturer-wholesaler-master plumber-public method of distribution. For the first time in a number of years the master plumber has been placed in a more favorable competitive situation to meet mail order and direct-to-you competition.

In view of the fact that any negotiations involving more than one branch of the plumbing industry is subject to legal complications unless certain fundamental plans are followed, the national office has prepared a bulletin on the subject of conference committees which is recommended to your earnest study. Much good has been evinced in areas where conference committees are active, and it is urged that their formation be extended to embrace the entire country.



John J. Calnan

The advisability of our members contacting their wholesalers in their respective localities has been fully covered both in articles published by our conference committee and in messages from myself published in our monthly bulletin and in the trade press.

The monthly Bulletin published by the N. A. M. P. is the principal means of communication between the national officers and the members. If the members would read the monthly bulletin, it might be that they would become acquainted with current policies and plans to carry them out. Often-times members feel that their interests are being neglected, when if they were to read the Bulletin, they would find that their interests are being protected in a very definite way.

The Bulletin is a valuable medium for the monthly message of the President and others to our membership. I urge that you read it carefully.

PUBLICATION AND SUPPLIES DIVISION

Time has proven that one of the most valuable assets of the National Association is its publication and supplies division that is conducted at the National Office in Washington. This division is principally made up of a continuation of a number of services that were formerly rendered by the Plumbing and Heating Industries' Bureau in Chicago.

Our P and S division distributes cost accounting systems and various standardized forms as well as the standard text books on plumbing and heating that were compiled and formerly distributed by the Bureau. In addition to the distribution of these materials, the P and S division also does printing, mimeographing, multigraphing, and offers various sales helps to the members of the industry. The services of the P and S division are conducted without an attempt being made to secure profit.

Every member of our association should keep in close touch with our P and S division in Washington. Whenever you need bookkeeping materials or standardized forms, write us and we will be glad to serve you.

ADVISABILITY OF AFFILIATION WITH STATE OR LOCAL CONSTRUCTION GROUPS

Because of some inquiries that have been received, the National Association has been giving consideration to the subject of the advisability of affiliation with state or local construction groups. This was thoroughly discussed at the meeting of the board of directors that was held in Washington last November. It seems that a great majority of our members feel that there are considerable disadvantages that result from such an affiliation. This is probably caused by the dominance of general contractors in these local and state construction groups, and by the further fact that the sub-trades know from a very bitter past experience, that any movement in which the general contractors are dominant probably has very unfavorable results for us. On the other hand, there is a minor group amongst our members who believe that there is advantage in having identity with the local and state construction groups. These latter associations probably have found some method for keeping the general contractor in check.

The final decision of our board of directors was that we do not take official action concerning this movement, and that we do not attempt to restrict affiliated associations from identifying themselves with construction groups. However, it was the unanimous opinion of the board that when inquiry was received from an affiliated association, that the National Association should point out to them the possible disadvantages of identifying themselves with an organization that might submerge our identity, or foster practices that would work to the disadvantage of the master plumber.

FEDERAL HOUSING ADMINISTRATION

It is hardly necessary for me to elaborate upon the modernizing and Federal Housing Administration movement, which has been fully covered by our Conference committee, and given ample publicity through the medium of our monthly Bulletin. I would recommend that every member take advantage of the advertising and publicity that is being promoted by the government, and that all of us identify ourselves publicly with the movement.

POLITICAL COMMITTEE

On January 2nd, I sent a general appeal to all affiliated state and local associations requesting co-operation in immediately forming a national committee of master plumbers who were acquainted with the various members of the United States Senate and House of Representatives. I appreciated the growing tendency on the part of the government to enter into business and become our competitors.

There have been an ever increasing number of complaints

that have reached the national office concerning this subject, and we have had appeals from practically every section of the country asking for relief from this part of the recovery program. Upon the receipt of a complaint, this has been filed with the proper department of the government who had supervision of the spending of the funds. However, before long, we came to realize that our complaints were not effective and that our pleas were not given very serious consideration. It was then decided that we would attempt to seek relief from the Congress of the United States. It was proposed that our committee will function by each member bringing to the attention of his congressmen the very severe competition that we were receiving from the government.

This is one of the most important objectives that we should concentrate upon during the next few weeks. With all the new activities of the government, we expect a marked increase in the number of contacts we must establish and maintain. In Washington we have found it necessary to employ a man to contact the various government departments, and personally take up matters that are of vital interest to our members. We can only obtain proper recognition if this work is reinforced with the efforts of our political committee.

The National Association has four very important affiliations: the Plumbing and Heating Industries' Bureau, the American Standards Association, the Chamber of Commerce of the United States of America, and the Construction League of the United States. In the case of all of these affiliations, our officers and directors are taking an active part in their work, and devoting considerable time in behalf of these movements.

CO-ORDINATION OF BY-LAWS

At the recent meeting of our board of directors, one of the directors made a very valuable suggestion: it was that local associations take action in co-ordinating their by-laws with state associations, and that state associations take further action by co-ordinating their by-laws with the National Association. It is very timely to do this now. The National Association has appointed a committee to make a study of this subject and report it at the next national convention. We recommend, therefore, that such a movement be inaugurated in each of the states.

Last year several of the state associations adopted a resolution relative to the method of paying the national per capita tax, that I think has considerable merit, and which I would propose for adoption at this convention. A copy of this resolution will be left on your secretary's desk. This resolution provides for the payment of membership dues to the National Association in a manner that is a definite help to the National Association, and at the same time places no hardship upon the local or state association.

MEMBERSHIP IS NEEDED

On many occasions in the past it has been said that "Membership in the National Association was never as valuable as at present." Today I repeat that statement. I do so because of my firm belief in this statement, which has resulted from serving as your National President for the last six months.

The members of our association may well be proud of our glowing accomplishments in the past. We have grown steadily since the birth of the association in New York City in 1883, and our development and expansion makes us rank today as the leading trade association in the building industry—the greatest assembly of master craftsmen that has ever been known to civilization.

During our 52 years we have encountered many serious problems—both major and minor difficulties have constantly beset us. We have passed through many cycles. We have seen many changes. But all through the career of our association we have steadfastly maintained our principles and spared no effort in promoting the best interests of the master plumber, and protected our industry from usurpation by unfriendly forces. The road has been long and hard, but we have fought well. Our accomplishments are many.

Today we face new problems—a changing order of business, and possibly even a changed social existence is ahead. So we wonder what the future will bring for the retail plumbing industry. Without attempting to make any prediction concerning the future, I believe it is reasonable to assume that regardless of what the new deal or the recovery program develops, it is accurate to predict that our best interests will be served by the strong arm of a large and forceful National Association of Master Plumbers. There is still much for us to do with reference to expanding and increasing the scope of local associations, state associations, and our National Association. Illinois is no exception. Due to the code activities and unquestionably because of the able leadership of President Henry P. Reger, and the active campaign that he carried on, our membership has been maintained, but I would like to see it increased still more. Let me urge you at this time to immediately develop a membership campaign to expand and increase the size of our state association to a numerical position greater than it has ever been before. This is possible to do.

More than mere words and more than the initiative of the officers of local and state association will be required to accomplish this. By this I mean that to reach our goal, it will require every member of our state association to do his full share towards attaining our objective. So frequently the membership depends upon its leaders to go out and secure the new members. While it is true that the progressive attitude of the officers of the state and local associations does much towards this end, especially if they sacrifice their time and their efforts in the manner that Henry Reger has, we are only sure of complete accomplishment if every member will accept his share of the responsibility, and give his active assistance to his officers.

I desire to compliment the secretary, William R. Brookman, for the excellent Bulletin which the State Association publishes each month. It is one of the finest publications issued by our affiliated associations.

It is an old saying, and a very wise one, that "if you show me the community or the state that has the strongest association, I will show you the community or the state which has the best conditions existing for the members of our industry." Why should we not, therefore, determine at this state convention to make Illinois the leading state in the union, to expand and increase our association to a size that will make a record of which we can well be proud?

NATIONAL CONVENTION PLANS

I am pleased to announce that the next annual convention of our National Association will be held in Chicago on June 25, 26, 27 of this year, with headquarters at the Stevens hotel. I extend a very cordial invitation to the members of the industry in Illinois to be present at that convention. In connection with the convention, arrangements will be made to hold an exposition of modern plumbing, heating, and other kindred products. We hope to make this one of the most elaborate and up to date exhibits that has ever been held under the auspices of the National Association. The convention will have a very interesting business and entertainment program. As a matter of local pride

for the city of Chicago and the state of Illinois, it is my hope and ambition that with the help and co-operation of the various branches of the industry, especially the master plumbers in our home state, to make the forthcoming convention one of the most successful in the history of our National Association.

CONCLUSION

This then concludes my report of the activities of the N. A. M. P., and my observations of the situation with which we are faced today. I have endeavored to emphasize some of our necessities, and in particular I have tried to stress the need for a larger and a stronger association.

We are members of a justly proud craft—the vision of our predecessors, and the efforts and energy of their successors have protected our interests and preserved the industry for us.

Now, and especially at this time, we are faced with new problems and new hazards. Let me urge you, therefore—each and every one of you—to leave this convention with a new determination—a will to succeed. Resolve now to give your officers increased support, and even better co-operation than ever before. Let's continue to carry on—ceaselessly, unselfishly, constantly working for the good of our cause. If we do this, and if we do it well, then posterity—our successors in our craft—may well say of us, just as we have said of our predecessors, and adopted as the slogan of our association—"They builded better than they knew."

Chicago N. and W. S. Master Plumbers Install New Officers

The North and West Side Master Plumbers Pleasure Club celebrated its installation of officers January 9th with a dinner and entertainment, at which 75 members of the club and their ladies were in attendance. It was held at the club headquarters, 2635 N. Kedzie Avenue, Chicago. Henry Swade, a past president of the club, presided as toastmaster and duly installed the following officers: President, Fred W. Sorge; vice-president, Paul Grosse; financial secretary, H. H. Diedesch; recording secretary, John Blair; treasurer, L. P. Markowski, and sergeant-at-arms, Emil Otto.

Telegrams of regret were received from State President Henry P. Reger and Secretary William R. Brookman on account of their inability to attend. Past President Walter Sievers was presented with a handsome fountain pen and pencil set in appreciation of his services as president during the past year. Peter M. Munn was also presented with a token in appreciation of his work as secretary. Following the dinner, cards and dancing were indulged in and refreshments were served during the evening.

Will Make Plumbing Code of Fulton, N. Y., Up-to-Date

The Plumbing Board of Fulton, N. Y., of which B. J. Buell of Buell Bros. is president, and William Harper and Henry Anderson are members, will revise and modernize the present plumbing code which is now regarded as antiquated. This action was brought about when Joseph Donovan, plumbing inspector, reported to the Board of Health that non-licensed plumbers were frequently violating the state law by working on the plumbing in local buildings.

Emil Otto Recuperating

Emil Otto, plumbing contractor at 2440 Winnemac Avenue, Chicago, who had the mishap to fall and break his leg, while attempting to board a street car on the evening of January 8th, is convalescing at his home and expects to be able soon to give his personal attention to business.

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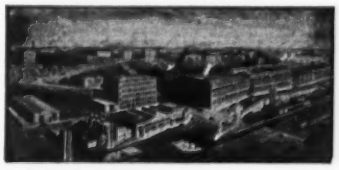

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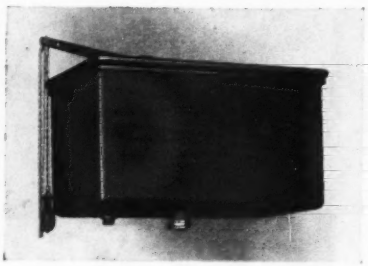

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Bronx Master Plumbers Hold Annual Meeting

The Bronx Branch of the Greater New York Master Plumbers' Association held its annual meeting on Wednesday evening, January 9th, and elected the following officers for 1935: President, Frank P. Roth; vice president, Philip Farbman; secretary, Richard Schwerin; treasurer, Alfred Beyrodt (re-elected); marshal, Woodward F. Ebner (re-elected); sergeant-at-arms, Joseph Milback (re-elected). The new officers were installed by Past President Commissioner Wm. J. Flynn of the Bronx.

Knights of Galena Install New Officers

The Knights of Galena installed their newly elected officers in their rooms at 8 Nevins street, Brooklyn, N. Y., on Friday, January 4. The ceremony was conducted by Matthew J. Kennedy, president of the Greater New York Master Plumbers' Association, and it was done in a most fitting manner.

The new officers are: President, Patrick T. Halloran; first vice-president, Richard McLaren; second vice-president, Jacob Gucklin; recording secretary, George Essex; financial secretary, Henry Seidensticker; treasurer, John A. Mahon; trustee, Martin Hayden, and guard, H. A. Gleason.

After the installation, refreshments were served and a few social hours were spent in discussing current questions and recalling old memories.

Montclair, Bloomfield and Verona Masters Install New Officers

The Master Plumbers Association of Montclair, Bloomfield, Verona & Vicinity, N. J., Inc., held its regular monthly meeting at the Hamilton House, Caldwell, N. J., on January 22.

President Henry J. Williamson presided and after the regular business of the Association had been attended to, Past State President Wm. N. Chesnut duly installed the newly elected officers, as follows: President, Henry J. Williamson, (re-elected for 13th time); vice president, Henry J. Weingartner; secretary, Chas. J. Samuel (re-elected for 6th time); treasurer, Paul Zeim, (re-elected for 5th time); inside guard, Joseph Capute; and trustee, John Klimback (re-elected for 3rd term of three years).

Arthur Badgley and Eugene Straub were the hosts for the meeting.

Edw. P. Ryan, district manager of May Oil Burner Corp., was introduced and in a very concise manner described his company's new oil burner boiler.

A letter was read from the N. J. State Secretary calling attention to the abolishment of State Codes by the acting Governor of New Jersey and advising the members that this would not affect the Plumbing Code as their code is a National Code and not a State Code.

The Association trustees were appointed to serve on a "delinquent committee" for the Association. These trustees are: John Klimback, Al Kievit and Arthur Sherman.

It was announced that the February meeting of the Association will be held at Robin Hood Inn, Upper Montclair, N. J.

Buffalo Master Plumbers Hold Large Card Party

Julius G. Irr was chairman of a committee of the Master Plumbers Association of Buffalo, N. Y., which was scheduled to give a card party at the Buffalo Catering Co. on Wednesday evening, January 30. An imposing array of prizes were donated for the event and were displayed in a prominent downtown show window previous to the party.

Brooklyn Master Plumbers Hold Annual Meeting

The Brooklyn Branch of the Master Plumbers Association of Greater New York held its annual meeting recently and elected the following officers: President, Raymond V. O'Brien; vice-president, Martin J. Hayden; treasurer, Henry D. Jost; secretary, Harry Barrow; financial secretary, Louis S. Nielsen; marshal, Patrick F. Halloran; sergeant-at-arms, Abraham Cohn.

The following delegates and alternates to the Greater New York Association for 1935 were also elected: Matthew J. Kennedy, Louis Frisse, Benjamin Reich, Charles H. Mentzinger, Patrick F. Halloran, Raymond V. O'Brien, Harry Voletsky, Henry D. Jost, Richard H. McChesney, William Wolff, Thomas H. Pinnell, Harry Barrow, Michael Dumey, Jacob Gluckler, Edward A. Pautch, Martin J. Hayden, Charles W. Smith, Frank DiLauro, Charles Henning, Edward J. Dunne, Harry A. Gleason, Saul Jarcho, Isidor Rosenthal, Peter Nielsen, John Gendler, Abraham Sehres, Abraham Cohn, Carl Roth, George Wassmer, Jacob J. Levine, Harry Kressh, A. Lipsky, George J. Haag, Louis S. Nielsen, William Johnson, Samuel Sanaman, J. Louis Bosch, Louis Feldman, John W. Hennessy, Morris Horowitz, Murray Faeber, Walter A. Rea, William H. Shuttleworth, James Johnston, William Harms and Samuel Fisher.

Albany Master Plumbers Install Officers for 1935

The Master Plumbers Association of Albany, N. Y., recently installed new officers for 1935. This association is now headed by Edward Daley as president. Working with him in conducting the Albany activities are Peter Rubenstein, vice-president; Joseph Nicklas, treasurer; George Decker, financial secretary; William Houseweller, recording secretary; Arthur Keller, sergeant-at-arms; trustees, Albion J. Eckert, chairman, Thomas Thomson, Vincent Scovello, Anthony Decker and Peter Welter.

Master Plumbers of Newton and Vicinity Hold Annual Banquet

The Master Plumbers Association of Newton and vicinity held its annual banquet and installation of officers on Wednesday night, January 9th, at Bonds Restaurant in Watertown, Mass.

The Women's Auxillary of the association took part and contributed much to the success of the party.

About fifty sat down to the banquet, during which they were entertained by Harry McGourty and Dick Leahy.

Following the banquet President Chas. Keizer extended a welcome to all and turned the evening over to the entertainment committee, consisting of Harry McGourty, Dick Leahy, W. Stevens and J. Cavanaugh.

Mr. Stevens, as installing officer, called the assembly to order, after which J. Cavanaugh, acting as his assistant, escorted the incoming secretary, Paul Urpin of Waltham, Treasurer L. Corcoran, also of Waltham, and Vice-President John Burke of Newton to their respective posts.

The board of directors are: Past President Chas. Keizer, President-Elect Michael O'Connell, Vice-President J. Burke, Secretary P. Urpin, Treasurer L. Corcoran and James Clasby.

The retiring president, Charles Keizer, was eulogized by Harry McGourty, who concluded his address by presenting Mr. Keizer with a past president's badge of solid gold.

Mr. Keizer was so overwhelmed by this surprise that he found it difficult for a moment to respond. When he did so, he expressed his gratitude and appreciation in a most fitting manner. He also thanked his fellow members for their splendid loyalty and cooperation.

In assuming office, President-Elect Michael O'Connell promised the members to give the association his most loyal service and asked their cooperation.

Mrs. Fred Warren, president of the Women's Auxiliary, presented the new president with a bouquet of flowers, on behalf of her organization.

Music and games brought the party to an end near midnight.

Oranges and Maplewood Masters Install New Officers

The Master Plumbers Association of the Oranges and Maplewood, N. J., Inc., held its regular monthly meeting January 2, with President A. G. Trapper presiding. Following the officers' reports of the year and other regular business, Geo. Brenner, vice-president of the New Jersey State Association, installed the new officers, being ably assisted by

Willard Durr, secretary; A. G. Trapper, past president and trustee-elect, and Raymond Bocco, president, all of the Master Plumbers Association of the Oranges and Maplewood, N. J., Inc.

George Buggeln, a former president of the Orange Association.

The new officers are: Raymond Bocco, president; Frederick Hoffman, vice-president; Willard Durr, recording secretary; Frederick Bogert, financial secretary and treasurer; A. G. Trapper, trustee, and Herbert Palmatier, sergeant-at-arms.

As Willard Durr had to leave before the installation, Andrew Prentice was installed as secretary pro-tem.

The entertainment committee, of which Geo. Brenner was chairman, assisted by Milton Robertshaw and Willard Durr, were instructed to make plans for the annual banquet of the association.

Kings County Masters Re-elect Alex Rotker President

The Kings County Master Plumbers Association, Inc., held its annual meeting on Wednesday, January 9th, in its rooms at 1174 Bedford Ave., Brooklyn, and elected the following officers for the coming year: President, Alexander Rotker; vice-president, Alfred Olson; treasurer, Alfred A. Kline; financial secretary, Louis Molinari; recording secretary, Louis Friedman; sergeant-at-arms, R. Glickman and A. A. Motta; board of governors, A. Hall, T. C. Constantino, M. Clark, H. Rosenbluth, B. Posner, H. Raskin, B. Stone and B. Shusterman board of trustees: M. Grand, S. Weithorn, A. Feldman, F. Cappuccio and H. Walker; counsel, Byrne and Byrne; director of publicity, I. H. Helfgott.

Al Kline, on behalf of the members of the association, presented President Rotker with a radio in appreciation of his good work for the association during the past year. Mr. Rotker is now entering on his third term as president.

Many Missouri Plumbers at Illinois Meeting

A large delegation from Missouri was present at the Illinois convention in Springfield, Jan. 22-24. This delegation was headed by Joseph S. Levene of Kansas City, state president, and by Jere Sheehan of St. Louis, past president and a national director and member of the national plumbing code authority. Others were R. C. Hunt, Frank J. Murphy, Edward Monteath, state code executive, Roger E. Jarvis, Mr. and Mrs. John Corrigan, and E. J. Blake, all of St. Louis, and E. H. Ost, of Kansas City, state secretary.

Westchester Master Plumbers Elect Officers

The Master Plumbers' Association of Westchester County held its annual meeting at the American Legion Building, in White Plains, N. Y., on Thursday, January 17th, and elected the following officers for 1935: President, Thos. Wright, Chappaqua; first vice president, J. J. Moroney, Pleasantville; second vice president, A. H. Kare, Mt. Vernon; third vice president, Harry Beckar, Tuckahoe; field secretary and treasurer, E. J. Sheppard, Mt. Vernon; financial secretary, John Rotando, Mt. Vernon; sergeant-at-arms, Erwin Horton, Ossining; trustees, A. H. Karl, Mt. Vernon, F. H. Bell, Yonkers, Chas. H. Ryan, Bronxville, Edw. Smith, Port Chester, and Arthur Fuchs, White Plains.

Sioux City Master Plumbers Hold Annual Meeting

The Master Plumbers Association of Sioux City, Iowa, held its annual meeting on Tuesday evening, January 8th, at the association's headquarters, 218 Commerce Building, in that city. All the officers and directors were re-elected as follows: President, H. N. Labbitt; vice president, M. J. Orr; secretary, Wm. V. Hagan; treasurer, Wm. Johnson; board of directors: Paul F. Beane, H. N. Armstrong and H. J. Bruns.

Mr. Bruns, chairman of the zone code compliance board of Sioux City, gave an instructive talk on the operation of the Bid Depository, which is being opened in the offices of the Sioux City Construction League, 218 Commerce Building, under the custody of H. A. Morrill.

Another important topic of discussion was an advertising campaign, which resulted in the decision that the Association will sponsor a weekly advertising campaign. The sum of $1,500 was appropriated for this purpose, and David Scott was appointed chairman of the advertising committee.

Jersey City Masters Elect Officers and Plan Annual Banquet

The Master Plumbers Association of Jersey City, N. J., Inc., has elected the following officers for 1935: President, James J. Conlin; vice-president, Robert T. MacDonald; secretary, James T. Brennan; treasurer, Charles Werner; sergeant-at-arms, Robert Armistead; board of trustees: John J. Corcoran, Anthony Marzullo and J. Jos. O'Neill.

On Saturday evening, February 16, the association will hold its annual banquet at the Elk's Club, 2857 Hudson Boulevard, Jersey City. It is planned to make this event just as enjoyable as all the former similar affairs of the association. The committee in charge is composed of Louis S. Komoski, chairman; Jas. J. Conlin, Edmund P. Ingram, John J. Corcoran, Geo. Cooper, Richard Entwistle, Jas. T. Brennan, John A. Ward, Wm. F. Bailey, Joseph Schneiderman, Harry P. Sharrock, A. M. Aronson, Ardle Connolley, H. J. Wasserman, Jr., John J. Crosby, Jos. A. Reilly, A. A. Marzullo and Wm. F. Mulholland.

North Hudson Master Plumbers and Auxiliary Hold Joint Meeting

The Master Plumbers' Association of North Hudson, N. J., Inc., and its Women's Auxiliary held a joint meeting at the Oyster Bay Restaurant, West New York, N. J., on Monday evening, January 21.

The meeting opened with the installation of the new officers of the Women's Auxiliary under the direction of National Director and Past State President, Mrs. Charles Zimmerman. The new officers are: President, Mrs. Clyde C. Cole; vice president, Mrs. Fred Baker; secretary, Mrs. Henry Bunker; treasurer, Mrs. Nick Triany; sergeant-at-arms, Mrs. Charles Botwinck; trustees: Mrs. Chris Werner, Mrs. Edw. Wiltreicht and Mrs. Jas. York.

Following this, State President Edmund P. Ingram of Jersey City installed the new officers of the Master Plumbers' Association. They are: President, Fred Baker; vice president, Robert Thane; recording secretary, Clyde C. Cole; financial secretary, Otto Viehweg; treasurer, C. Westervelt; sergeant-at-arms, A. Fierer; trustees: L. Bender, James York, C. Werner, W. Jacobs, C. Botwinck.

The entire party thereupon sat down and enjoyed a chicken dinner. Following this, Secretary Clyde C. Cole, acting as toastmaster, introduced the following speakers: State President Edmund P. Ingram, Local President Fred Baker, Auxiliary President Mrs. C. C. Cole, National Auxiliary Director Mrs. Chas. Zimmerman, Auxilary Past State President Mrs. Wm. T. J. Orriss, Past President Alex Thane, Vice President Robert Thane, Past President Nick Triani, State Auxiliary Past President Mrs. Henry Bunker, Charles Werner of Jersey City, Edw. Bender of Pierce, Butler & Pierce Manufacturing Corporation, M. Mac Brenner of Montgomery Pipe & Supply Co., and J. R. Lewis of DOMESTIC ENGINEERING.

After speeches, the entire party played cards the rest of the evening.

Wm. Ludlow to Be Re-elected President of Buffalo Master Plumbers Association

William Ludlow, president of the Master Plumbers Association of Buffalo, N. Y., for the past year, has been renominated for that post by both committees, which has suggested candidates for the various offices for election at the February meeting.

The first committee, consisting of William Maunz, George Sander and Gordon Webster, nominated the following: President, William Ludlow; vice-president, Julius G. Irr; secretary, Alex. Kirkpatrick and William G. Maurer; treasurer, William A. Keller and Fred N. Jones; directors, three to be elected; A. A. Westphal, Fred N. Jones, Charles Leins, P. J. Donovan, Roy L. Noah, George Lochner, Harvey Tyler and Elmer Dechert.

The second committee made the following selections: President, William Ludlow; vice-president, George Sander; secretary, William G. Maurer and A. A. Westphal; treasurer, W. A. Keller and William C. Maunz; directors, three to be elected: William C. Maunz, A. A. Westphal, Fred N. Jones, E. F. Killinger and Craig Wilson.

Charles H. Mandy Appointed Plumbing Examiner in Alabama

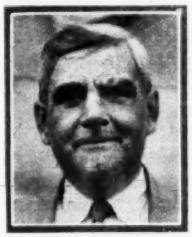
Charles H. Mandy, president of the Master Plumbers' Association of Birmingham, Ala., has been appointed by Governor B. M. Miller as a member of the Alabama Board for Plumbers' Examination and Registration. The appointment was made by the governor to fill the vacancy caused by the resignation of J. F. Hickman of Birmingham.

Obituaries—

John S. Irvine

John S. Irvine, the fortieth president of the National Association of Master Plumbers, died at his home in Detroit, Mich., on Tuesday, January 15th, in his 58th year.

John Sinclair Irvine was born in Scotland in 1877 and came to Detroit with his parents in 1879. Following his education in Detroit schools, he learned the plumbing trade.



John S. Irvine

Working his way up through the ranks he engaged in the plumbing business as a partner in the firm of Irvine & Meyer on Woodward Avenue, Detroit. Before entering business he was for some time connected with Henry Ford at the time of his entrance into the automobile field.

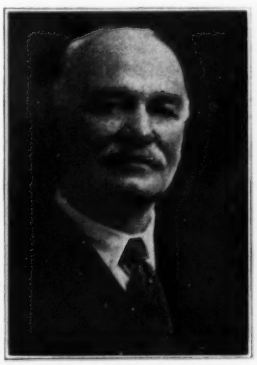
Having taken a very active part in association matters, Mr. Irvine was elected vice-president of the National Association of Master Plumbers in 1921, in which office he rendered exceptional service. In 1922 at the annual convention in Detroit he was elected president of the National Association and served in this office from June 8, 1922, to June 28, 1923. Later he served on the board of directors of the Association. In recognition of his services to the organization he was made an honorary member of the National Association of Master Plumbers. He was a member of the Masonic fraternity.

In recent years he had given up his contracting business and interested himself in selling oil burners and other specialties.

Funeral services were held at his late home in Detroit on Friday afternoon, January 18th, and it was attended by many members of Master Plumbers' Associations, including National Secretary Charles E. Gawne of Chicago, representing National President John J. Calnan of Chicago; former National Director Wm. E. Decker of Grand Rapids, Mich.; State President F. B. Lent of Saginaw, Mich., and State Secretary H. M. Reed, of Jackson, Mich. Mr. Irvine is survived by his wife, a brother and a sister.

William M. Daly

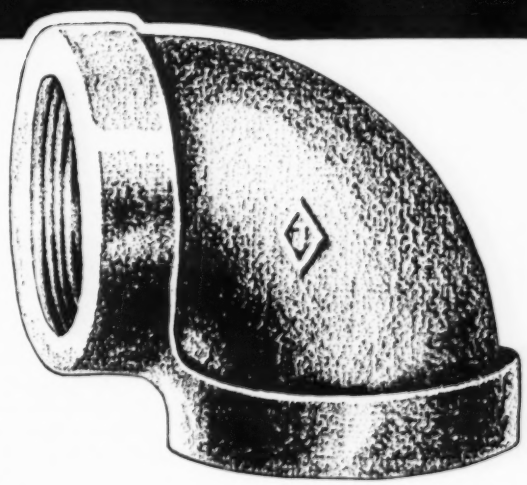
William M. Daly, who had been engaged in the plumbing business in Kirkwood, Mo., since 1888, died at his home in that city on Sunday, January 6, after two months' illness in his 69th year. He was a past president of the Missouri State Association of Master Plumbers. He also was a director and vice-president of the Kirkwood Trust Company for the last 35 years. He was mayor of Kirkwood from 1900 to 1904, and served as alderman from 1904 to 1908, and from 1910 to 1914. His widow, two sons and a daughter survive him.



Wm. M. Daly

John F. Weinheimer

John F. Weinheimer, plumbing and heating contractor in Buffalo, N. Y., died at his home in that city on Saturday, December 29, after having been in poor health for the last two years. He was in his 68th year at the time of his death



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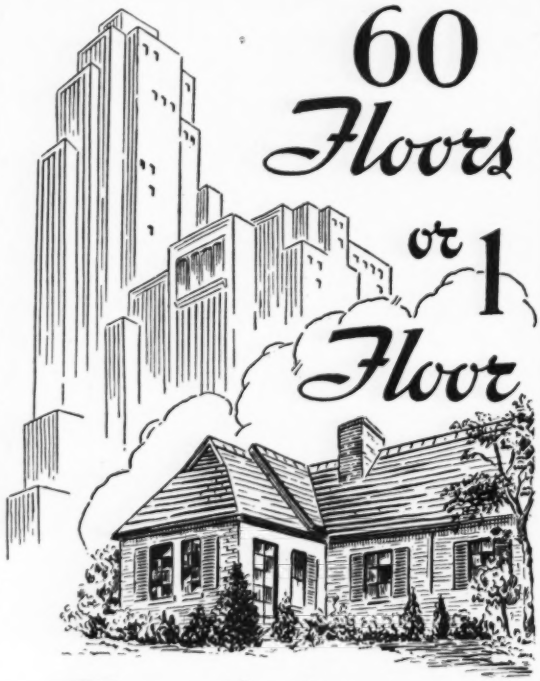

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Watrous Majestic Flush Valve

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and had been engaged in the plumbing and heating business at 308 Genesee Street in Buffalo since 1888. He was a member of the Buffalo Master Plumbers Association and he is survived by his widow, two daughters and a son.

Frank Daly

Frank Daly, president and founder of the Daly Plumbing Company of East Chicago, Ind., died recently at his home in that city after a brief illness.

Stanley Lassa

Stanley Lassa, who until a few years ago conducted a plumbing shop at 2927 Archer Avenue, Chicago, died January 16th following a prolonged illness. His widow, three children and a brother survive him.

George A. Laitner

George A. Laitner, a plumbing contractor in Kansas City, Mo., died recently at the General hospital in that city in his 67th year. He had conducted a plumbing business in Kansas City since 1909. His widow and four brothers and two sisters survive him.

L. H. Westman

L. H. Westman, formerly a member of the plumbing firm of Bjorkman Bros. of Minneapolis, Minn., died at his home in that city on Saturday, January 19, in his 64th year. He was head plumber for the Minneapolis Board of Education for a number of years. His widow, a daughter and three sons survive him.

James J. Clark

James J. Clark, a pioneer master plumber of Chicago, passed away January 2nd at his home in that city, in his 78th year. Mr. Clark for many years conducted a plumbing shop on 22nd Street near Michigan Avenue, but for the past ten years had been retired from business. He is survived by two sons and a daughter.

Emil Ecklund

Emil Ecklund, a plumbing contractor at Jefferson, Iowa, died suddenly of heart failure at his home in that city on Thursday, January 17th, in his 65th year. He was born in Sweden in 1870, came to this country in 1885, learned the plumbing trade in Omaha, Nebr., and conducted a plumbing business in Jefferson, Iowa, since 1908. His widow, a son and a daughter survive him.

Hector T. Gagnon

Hector Tnomas Gagnon, plumbing and heating contractor at North Bay, Ontario, Canada, died at the home of his cousin, David Barnaby, in Ottawa, Ontario, on December 31st, in his 53rd year, after six weeks' illness. He recently became widely known for his installation of plumbing and heating systems in the Dionne Hospital at Callander. His widow and three daughters survive him.

John P. Cunningham

John P. Cunningham, a retired plumbing contractor in Kansas City, Mo., died recently at the St. Joseph hospital in that city, in his 67th year. Mr. Cunningham was born in Evanston, Illinois, and came to Kansas City when 20 years old. A few years later he was appointed plumbing inspector for that city, in which office he served in the late '90s. Following this he engaged in the plumbing business and was active in local and state association affairs for many years. He was at one time president of the Missouri State Association of Master Plumbers. He retired from business about three years ago. A son and three daughters survive him.

Illinois Master Plumbers Open Convention Season

Nearly 300 Delegates Hear Leaders Discuss Problems of Industry —J. A. Van Nattan Elected President

A PROGRAM of unusual interest held the attention of nearly 300 delegates, members and guests who attended the 42nd annual convention of the Illinois Master Plumbers Association. This was held at Springfield Jan. 22-24. This program brought out discussions of problems of the industry by leaders such as John J. Calnan, president of the National Association of Master Plumbers; W. E. Price, president of the Central Supply Association; A. R. Herske, vice president of the American Radiator Co.: of the relationship between plumbing and health by heads of the Illinois and Chicago public health boards and by William J. Lang, Chicago, head of a special research committee: of governmental problems affecting plumbing by Percy Wilson of the FHA, Major Robert N. Campbell of the NRA and Robert J. Barrett of the divisional code authority. In addition, many prominent leaders were present from other branches and other states and their impromptu remarks attracted the interest of the delegates.

Henry P. Reger, who has headed the Illinois association for three years, was highly complimented on the character of the work he has performed in building up that association during an unusually important period. He is succeeded as president by J. A. Van Nattan of Springfield.

The other new officers elected include Thomas F. Hanley, Jr., Chicago, first vice president; Arthur J. Stephens, Downers Grove, second vice president; William F. Hildeman, Chicago Heights, treasurer.

In addition to President Calnan, a number of national officers were present including National Secretary Charles E. Gawne, of Chicago and National Directors Barrett, Edward B. Kleine of Cincinnati and Jere Sheehan of St. Louis. President J. S. Levene of Missouri and President J. P. McCoy of Wisconsin were present.

The convention was in general charge of William J. Lang who acknowledged the thoroughness with which the Springfield membership had worked to make this convention successful. The Springfield Association is headed by Harold Von De Bur, as president, with William J. Franz, secretary.

William R. Brookman as executive secretary for the State also received congratulations on the work done during the year and at the convention.

Plumbing and Health

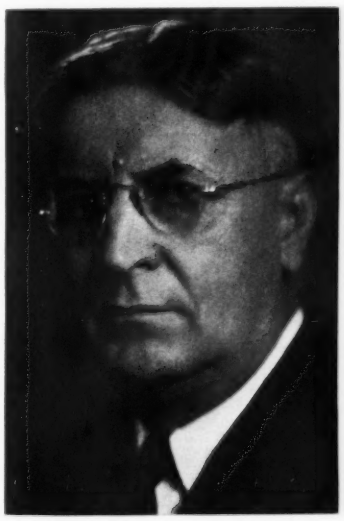
The growing appreciation of the relationship between properly installed plumbing and health, was brought out in several addresses, and reports. Those participating included representatives of the Illinois and Chicago boards of health and William J. Lang, Chicago, chairman of the special committee of the Chicago association which is making a research into cross connections and back siphonage.

The subject was introduced by Clarence W. Klassen, who has just succeeded to the position of chief sanitary engineer, state department of health, succeeding Harry F. Ferguson, who died a few days ago. The subject was "Pollution of Water Supplies Through Faulty Plumbing." Through pictures and drawings, Mr. Klassen illustrated water pollution problems met in rural and urban districts and told how his department is working to correct water pollution by securing better observance of plumbing rules.

Major Joel I. Connolly read a paper prepared by Dr. Herman N. Bundesen, president of the Chicago board of health, discussing "Plumbing in Relation to Infectious Disease." It recounted experiences which have won medical men to a greater appreciation of the need for better observance of plumbing laws.

The Bundesen paper points out that plumbers have done

Henry P. Reger
Retiring President

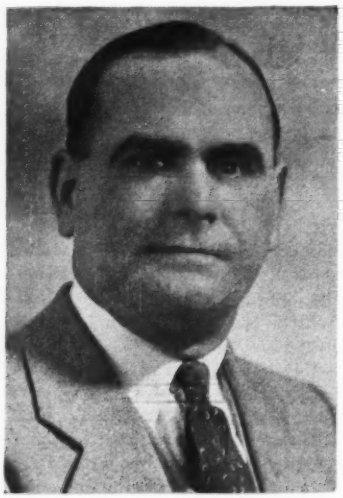


J. A. Van Nattan
President-Elect

much for health tnrough working with health authorities. They have helped both in finding causes of epidemics, where polluted water was to blame, and in working to prevent future outbreaks. It was recalled that some years ago plumbing as a factor in health was discounted and it is only recently that more medical men have again come to agree on the definite relationship between properly installed plumbing and good health.

In Chicago, the subject of cross connections has been watched for years, first in industrial plants to see that factory wastes were not thrown into drinking lines. Then hospitals were inspected. Dr. Bundesen gave some examples of what had been found in hospitals where faulty plumbing installations had resulted in contaminated water reaching the operating rooms, or being carried back into sterilizers, into stills or into equipment used for cleaning nursing bottles. As a result of this work, better designs of hospital equipment had been brought out.

Four outbreaks traced to faulty plumbing have occurred in Chicago in the last two years. Two took place in indus-



Charles E. Gawne
Secretary of N. A. M. P.

trial plants where untrained workmen and careless superintendents made changes in the piping bringing polluted water into the drinking lines. Another was the familiar case of two Chicago hotels and the fourth came at the time of the stockyards fire a few months ago when polluted water normally used for cattle only was used by firemen and others.

Dr. Bundesen urged that qualified plumbers be used on modernizing work where present piping is tapped for new connections. He asked for better inspection and more alert health authorities. He pointed out that Chicago is not exceptional, in fact, conditions there are probably better than in most cities as the subject has been under closer scrutiny and the health authorities have been insisting on corrections.

The entire subject of proper plumbing was important enough, he felt, to deserve united action by local groups and probably a central program by the federal health authorities.

PRESIDENT REGER'S REPORT

In his annual report, President Reger predicted a greater measure of recovery this year. To secure it, he urges the whole industry to work, to co-operate and to utilize its trade associations. The familiar system of distribution, manufacturer to wholesaler to dealer to public, is the best one to defend the public's interest and he urged those in the industry to work with those others who favored this plan of distribution.

He pointed out the magnitude of the job given by President Roosevelt's recovery program and feels that the plumbers did a good job in securing the kind of a NRA code they did, and that Illinois did well in promptly organizing to make that code operative. Mr. Reger thanked the 36 committees and the 114 plumbers in their membership who have worked on code enforcement. He has traveled thousands of miles on code affairs and thanked Thomas F. Hanley, Charles E. Gawne and William J. Lang, all of Chicago, William F. Hildeman of Chicago Heights and J. A. Van Nattan of Springfield, for their help in code work. In Illinois, 33 out of 35 zones now have bid depositories set up. The PWA program has brought business to this industry and Mr. Reger sees in the FHA the best opportunity offered by any federal movement to help the building business.

Secretary Brookman told of the many activities centering around the Illinois association, both in code work and in other organization affairs. He had personally attended 125 meetings during the year and had organized five new local associations. He showed that the association was in good shape from the standpoint of membership and of finances. He emphasized that the same hard work which had been spent in getting the NRA code, was being shown in enforcing it and would be used, when needed, to secure its amendment.

Co-operation Means Progress

An instructive talk carrying definite recommendations for a plan of action by all branches of the industry, was given by W. E. Price, Knapp Supply Co., Muncie, Ind., president of the Central Supply Association. Under the heading of "Co-Operation Means Progress," Mr. Price recalled that co-operation means to operate together for a common objective, with joint action and with profit sharing.

"The last part of this definition is one that will interest every member of the industry and is the real reason why we do things in any given way.

URGES THREE STEPS

"During the last few years there has been too much loose talk about eliminating some one branch of the industry. In order to promote a better feeling in the industry, we should do three things:

"First: All branches of the industry cooperate in formulating a declaration that each branch serves a function and is an economic necessity.

"Second: Recognizing that each branch is an economic necessity let us cooperate in forming a plan whereby we can jointly attack the problems of the industry.

"Third: Having jointly made a declaration that our interests are common and having jointly formed a plan of action, let each sincerely and cooperatively work through our different organizations to sell every member of the industry on the soundness of the declaration and the plan. This means more than mere lip service.

"In formulating a plan of definite action, certain things should be considered and we give below a list of a few of these problems.

First—and foremost: Better Sanitary Laws. If we could have uniform sanitary laws throughout the United States, properly reinforced by local ordinances, we could control the installation of the merchandise we have for sale. If we

can control this situation we can control the channels of distribution.

Second: Better Advertising. Every branch of the industry should be interested in coordinated campaigns through newspapers, radio, bill-board, circulars, show-windows and building exhibits. In this way we could not only sell the general public on the items of merchandise that we have to offer them, but we could also sell them on the idea that the master plumber really has a service to sell that requires skill, knowledge and business ability. If we joined our resources, the cost would be small in comparison with the amount spent at the present time and the results would be infinitely greater.

Third: Regaining old business that has been lost to mail order and D-t-u houses and to the public utilities.

PUSH NEW ITEMS

Fourth: Taking advantage of every opportunity to promote the sale of merchandise brought out by manufacturers as new items to the line, thus rightly diverting the sale of these new articles to the plumbing and heating trade. Too many manufacturers have brought articles on the market and, having received no encouragement through the wholesaler or the master plumber, have marketed same through department stores, electrical stores and other organizations.

Whenever an item is offered for sale that has anything to do with plumbing and heating, the wholesaler and the master plumber should be willing to do his part to promote its sale.

Fifth: Bend every effort to help the Federal Housing Administration. What we have always needed in the building field is a financial set-up that would take care of every item of building construction. We have lost a great deal of business to the mail order houses because they could finance a home complete.

The Federal Housing Act now offers the opportunity that we have always needed in the building field. Millions will be spent on advertising. Every wholesaler and every master plumber should inform himself as to the provisions of the act thus placing himself in a position to take full advantage of same."

NRA Codes and Our Industry

Edward B. Kleine of Cincinnati, Ohio, past president of the National Association of Master Plumbers and a member of the national code authority, talked briefly. He feels that Illinois has contributed notably to the progress of the N. A. M. P. President Calnan is setting a record of leadership while in his own business Mr. Calnan has commanded the respect of the other branches of the industry.

On code enforcement, Mr. Kleine asked for patience. He feels that the code is designed to elevate the ethics of the business and the plumbing contractors will be the ones most benefited. Because of that fact, he finds it hard to believe that the contractors will be the ones to break down the very code which is planned to help them.

NRA codes and their present bearing on the business of the plumbing and heating contractor were discussed at length at the Illinois convention. Major Robert N. Campbell, deputy NRA administrator from Washington, talked on "code compliance." Robert J. Barrett, executive director of the divisional code authority for the plumbing contracting industry, talked on "Our Code of Fair Competition." Ernst L. Flentje, assistant executive director, also spoke. Illinois President Reger, in charge of state code work, was another speaker and many questions were asked by the delegates.

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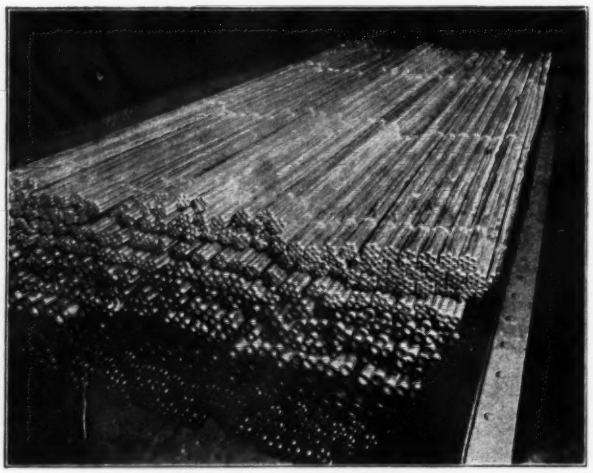

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Mr. Campbell pointed out that code compliance was easier to secure when codes were new and enthusiasm was keen, than it is now. He said NRA officials realize that the one who complies with the code is handicapped if his competitors do not. To hasten enforcement, the NRA has just established 10 regional compliance boards so that complaints need no longer await delayed action from Washington.

He said many complaints have been received and that NRA had tried to do something on all of them whereas the feeling now is that it would be better to do something more definite on a few significant cases. He pointed out that many complaints are delayed because imperfectly and incompletely submitted. Mr. Campbell feels that decisions by the Supreme Court are probably needed and that, in general, NRA administration will be an evolutionary process.

Director Barrett praised President Reger for his work in Illinois and President Calnan for his direction of national affairs. He recalled that the plumbing code is a law and is rated by many as the best code in the construction industry. It is certainly the answer to the wishes of many, he said, recalling that a major problem like bid peddling today is defintely controlled because of the code. This alone will save millions, he said, to the plumbers.

He reported the feeling at Washington that the law controlling the NRA will be extended from one to two years because many good results have been secured and congress and the administration want to maintain those results.

Code changes, as now talked about, center largely around the removal of price fixing. This feature is not in the plumbing industry's code which carries the proviso that sales must not be made below cost. To meet the possibility that the campaign against price fixing might affect the cost clause, Mr. Barrett has filed a strong protest against the removal of that clause.

The code executive pointed out that of every $1.00 paid for code work, 12½c is kept in Washington and 87½c is returned to the state. Code assessment payments have been slow and the expenses heavy so that Mr. Barrett urged prompt payment of the assessment and a greater degree of patience in waiting for better code compliance.

In the discussion of the code, some of those who participated were Edward B. Kleine of Cincinnati, former national president, and Joseph S. Levene, of Kansas City, president of the Missouri Association. Mr. Levene urged plumbers to use the opportunity which the government gave them through the codes.

Ed. L. Penfrase of New York, former national secretary, talked on "State and Municipal Plumbing Code Revision." He showed how many cities are now revising their codes and in most cases strengthening them. He urged a closer study of codes and of the work of bringing them up-to-date. Mr. Penfrase is now associated with the Copper and Brass Research Association, New York, and told of progress made in adapting copper and brass tubing and piping for plumbing.

Lang On Research In Plumbing

William J. Lang, of Chicago, reported as chairman of a special committee which is in charge of laboratory research on back siphonage and cross connections being conducted by the Plumbing Contractors' Association of Chicago. He feels that a new era for plumbing is opening provided this work is done properly. Mr. Lang believes that recent epidemics have stirred both the public and health authorities to a better appreciation of the relationship between properly designed and installed plumbing and public health.

Mr. Lang feels that many master plumbers have been installing products without knowing whether they were safe,

Members of the Illinois Master Plumbers Association placing a wreath at the tomb of Abraham Lincoln, Springfield, Ill. Left to right: T. W. Merryman; Clifford N. Smith; Chris H. Platt; Thos. Donlan; Chas. A. Burmeister; Jim Hyland; Michael Mele; W. J. Franz; T. Arenberg; Henry P. Reger, Past President; Carl R. Lindblad; J. A. Van Nattan, President; Axel Carlson; T. D. Lewis; and Albert Smith.

saying that his own connection with this research laboratory for the past four months has taught him more about plumbing than he has gained from 35 years previous experience.

He sketched the development of vacuum breakers brought out to meet the problem of back siphonage. Disclosures of the possibilities of back siphonage led the Chicago health authorities to insist on protective equipment. Mr. Lang recalled that the efforts to meet this order showed a variety of opinions regarding proper design and equipment, leading to the decision to conduct carefully supervised tests.

These tests have been carried on in Chicago, one under the supervision of three engineers being reported and illustrated in the January issue of DOMESTIC ENGINEERING.

The tests on equipment sent in by manufacturers are being made at this laboratory. In this way, Mr. Lang feels that the plumbing contractor can gain an exact knowledge of the operating problems of the equipment he installs. He said that the Chicago health authorities had promised not to approve equipment unless the laboratory tests were satisfactory.

Mr. Lang spoke in favor of the provision of separate risers for closet connections. He pointed out that this would save hotels a great deal of money because of the frequency of damage suits for scalding. One hotel, he said, has now three damage suits for scalding aggregating $150,000 due to the failure to have adequate piping.

The chairman feels the importance of the work being done by this special committee and its laboratories, justified its support not only by the Chicago group, but by all the Illinois plumbers.

Plumbers of Tomorrow

A. R. Herske, vice president of the American Radiator Co., New York, discussed "The Plumber Tomorrow." He recalled that selling is taking advantage of an opportunity, tying in two concurrent situations. In plumbing and heating today, the Federal Housing Administration, with its nation wide modernization program is providing the opportunity which prompt action by the industry's dealers can translate into actual sales.

The plumbing industry, Mr. Herske pointed out, had been built on a theory of legislation, on a recognition of the health factor. Today, business executives from other fields are scanning our industry closely, many believing that it offers broad opportunity for profit through the introduction of a new form of salesmanship. Mr. Herske said that 31,000 men are selling oil burners and in many cases are beginning to handle air conditioning items. He felt that these outsiders are potential competitors and their competition would be from the direction in which our industry has made the least progress, that is, in selling.

Mr. Herske showed that the distributing system which provides for manufacturers, wholesalers and contractors or dealers, is economically sound and has been proved sound. But he feels that the question at issue is whether this new type of competition which is impending, may not eliminate many of the present manufacturers, the present wholesalers and the present dealers in favor of newcomers who are better able to attract the attention of the public and to sell them.

TREND TO LOWER PRICES

An abundance of appreciation is due to the past leaders who helped to establish and to maintain this industry. But that appreciation carries with itself, an obligation to adapt present day methods to today's demands. Mr. Herske pointed out how electric refrigerators had started out at a high price but increased sales had reduced the prices 80 per cent. Oil burner prices are dropping toward lower levels in order to reach a broader market. Radios likewise started out at a high level with few sales only to settle into a lower price level with many sales. This leads Mr. Herske to advance the question that the present manufacturers, wholesalers and dealers of our industry should recognize the potential competition of new influences trained to put selling in first place and schooled in methods of large volume selling at lower prices.

With the home becoming the salesroom of today, Mr.

Herske feels that our industry must concentrate more definitely on the task of learning and employing salesmanship. The established homes are the main markets for American made goods, and in those homes the battle between industries is being waged. Mr. Herske feels that our industry as now constituted has every advantage in its favor except that of skilled salesmanship. It has engineering experience and installation ability but the dealers must learn to know the public and the ways of interesting the public.

A. R. Herske, Vice-President
American Radiator Company

The business possibilities in an active and sound approach to the public are being revealed, Mr. Herske pointed out, by the FHA program. Dealers here and there are getting big results, some having handled several hundred jobs based on FHA loans. One small Philadelphia operator, fired with an idea, has developed 60 FHA jobs. But too many have failed to recognize their obligation to sell.

Our industry is just at the beginning of a transition period and each one must ask himself the question of whether he is doing those things which will assure him of a place in the industry a few years from now. "Just hoping to get business is using the wishbone," the speaker said. "Talking about business is using the jawbone. Going out after business and getting it is using the backbone" was Mr. Herske's cryptic way of closing his talk.

Convention Committees

The work of the convention was in charge of the following committees:

Credentials: Harold Von De Bur, Springfield, chairman; Virgil Hetzler, Quincy; Martin F. Runge, Elgin.

Resolutions: E. J. Farrell, Aurora, chairman; Tom H. Carson, Danville; Otto Witzleb, Dixon; Charles A. Dreier, Chicago; Fred W. Schlie, Decatur.

Nominating: R. W. Bridge, Elgin, chairman; A. J. Butow, Evanston; Frank J. Ruddy, Aurora; George S. Gildner, Bloomington; Thomas F. Hanley, Jr., Chicago; E. O. Bergren, Rockford; John MacKenzie, Oak Park; A. J. Stephens, Downers Grove; Louis Conter, Freeport; Lee H. Rose, Peoria; D. M. Stewart, Springfield; Philip Harter, St. Charles; D. M. Raiche, Kankakee; Dick Johnson, Champaign; George Ernst, Quincy.

Memorial: Wm. J. Schlegel, Belleville, chairman; T. D. Lewis, Somonauk; Rupert J. Weber, Chicago.

An Unconventional Convention Report

To the Editor:

The Illinois convention for "35"
Was well attended and very live,
T'was held in Springfield for three days
(Attending such conventions pays).

You meet competitor and friend
And jobbers' salesmen without end,
Some manufacturers' men were there
To meet their friends, and talk their ware.

The Weather Man, that fickle cuss,
Walked completely out on us.
Went to see Miss Coldy Snow,
Down in Zero or below.

He made it tough for some of us,
Who drove a car, or rode a bus,
But fickle Weather Man or not,
We were there right on the dot.

Members came from near and far
The Chicago Crowd had a special car.
Arriving there, it wasn't hard
To register, and get a card.

The card, they told us, we must show,
As to the meetings we would go.
A program given to us too
Showed time of meeting "10 till through."

The convention opened with a song,
A good old custom, can't be wrong.
When President Reger took the chair
A local Bishop offered prayer.

Of speeches there were quite a few
To welcome men and women too.
Even salesmen had to stand
And they were given a big hand.

From then on words began to fly,
As parades of speakers passed us by.
Each one had a lot to say,
Some slapped back at NRA.

"Big Shots," they were there galore,
Did their stuff and even more,
Told us of their personal views
"Off the Record' no real news.

"Talent" best I've ever seen,
Barrett, Kleine and Jere Sheehan.
Match that, if you think you can
Then just add John J. Calnan.

"Visitors" from Missouri state
Numbered just exactly eight,
While Wisconsin's Faithful Four,
Again were there as days of yore.

John J. Calnan, National Pres.,
Made a speech in which he says,
"They Builded Better Than They Knew"
A grand old slogan, yet it's true.

"Big Bill Lang," talked from the floor.
At first I really thought him sore,
For want of words he didn't lack,
Of bowls and valves that siphon back.

One "Big Shot" advanced this angle
Though the Alphabet he'd tangle
Use F. H. A. and P. D. Q.
Make old buildings look like new.

Twenty men and even more,
Clawed the air and stamped the floor.
How to stop them, no one knew,
With time of meeting "10 till through."

For three long days they did their best,
To get these speeches off their chest.
Through it all they held our attention,
And that's the test of a real convention.

(Signed) Rambling Rhymester.

Reading Clerk: Charles E. Gawne, Chicago.

Sergeant-At-Arms: Matt A. Noonan, Springfield; assistant sergeant-at-arms: C. M. Towsley, Springfield.

Complete plans for the convention had been worked out under a general convention committee headed by William J. Lang of Chicago as general chairman with Secretary Brookman as assistant and William J. Franz of Springfield as local chairman. They were assisted by the following committees:

Finance and Arrangements: William J. Lang, chairman; Henry P. Reger, John J. Calnan, James W. Fettes, Chas. E. Gawne, Rupert J. Weber, Peter M. Munn, Charles A. Dreier, William R. Brookman, Thomas F. Hanley, Jr., Henry O'Callaghan, Marcus Weil, William F. Hildeman, Henry T. Strenger, Benjamin Weil of Weil-McLain Co., Charles E. Barrows of Crane Company, William J. Spillane of Jas. B. Clow & Sons, Harry C. Yelton of Inland Supply Co., Thomas Floro of Grinnell Company, Joseph F. Carroll of Standard Sanitary Mfg. Co., John Kohler of Kohler Co.

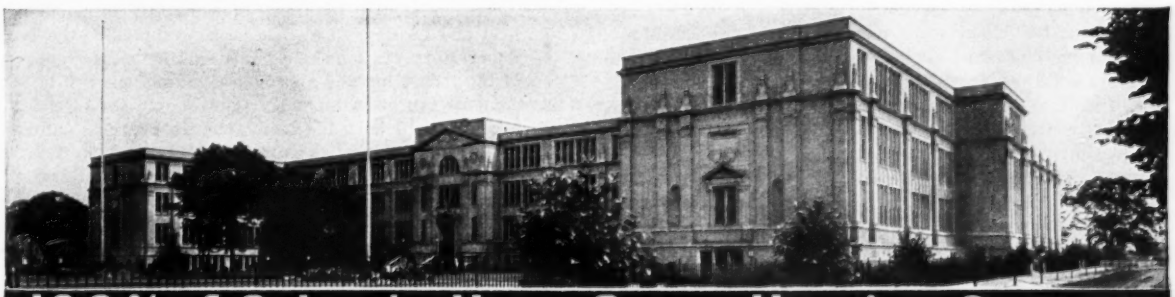
Men's Reception: William J. Franz, chairman; Merle J. Andrews, James B. Campbell, Solon Drendel, Rudolph Haas, Herman Kibele, W. Harold Knox, Henry F. Long, Guy Miller, James F. Murphy, M. J. Nollen, Matt A. Noonan, James T. Power, D. M. Stewart, Frank Straub, C. M. Towsley, J. A. Van Nattan, R. W. Wells, George B. Culbertson, J. Lee Carey, Harold Von de Bur, John F. Willey, George B. Leake, Fred Franz, Jr., D. M. Conwill, Frank K. Christman, William Stabb, Arthur Weiskopf; J. H. Thomas, Robert Thomas, A. R. Booth, all of Booth & Thomas, W. W. Weaver of Yelton-Weaver Supply Co., Russell Hunter, of Crane Co.

Other committees were in charge of definite portions of the program, such as the various entertainment features and members active on those committees were:

James B. Campbell, C. A. Dreier, Frank Straub, James F. Murphy, Solon Drendel, M. J. Nollen, George B. Lake, Fred Franz, Jr., D. N. Conwill, Herman Kibele, Henry Long, Harold Von De Bur, Frank E. Christman, James T. Power, George B. Culbertson, Rudolph Haas, J. Lee Carey, J. A. Van Nattan, D. M. Stewart, Merle Andrews, Guy Miller, J. F. Willey, Hugh P. Marshall, Peter M. Munn, G. R. Englin, William Redieske, Joseph Piraux, Jr., William K. Glen, Elmer E. Ernst, Kenneth MacKenzie, John Kohler, William R. Brookman, William J. Franz, Norman J. Radder, W. Harold Knox, William F. Hildeman, Robert Wells, C. M. Towsley, William Staab, Arthur Weiskopf.

Similarly the full program of entertainment for the women had been subdivided into the definite responsibility of different committees, members of which were:

Mrs. William J. Franz, chairman; Mrs. J. B. Campbell, Mrs. J. F. Murphy, Mrs. M. A. Noonan, Mrs. Fred Franz, Jr., Mrs. Celia Rice, Mrs. J. Lee Carey, Mrs. G. B. Leake, Mrs. Arthur Weiskopf, Mrs. W. H. Knox, Mrs. C. M. Towsley, Mrs. Solon Drendel, Mrs. Guy Miller, Mrs. Robert Wells, Mrs. Merle Andrews, Mrs. James T. Power, Mrs. J. A. Van Nattan, Mrs. D. M. Stewart, Mrs. Henry Lang, Mrs. J. F. Willey, Mrs. G. B. Culbertson, Mrs. D. N. Conwill, Mrs. Rudolph Haas, Mrs. Bertha Magsamen, Miss Anna Von De Bur, Miss Josephine Noonan, Miss Elizabeth Power, Miss Catherine Nollen, Miss Edith Leake, Miss E. Ruth Van Nattan, Miss Jane Power, Miss Roberta Cleary, Miss Julia Nollen, Miss Agnes Conway, Mrs. W. W. Weaver, Mrs. Robert Thomas, Mrs. A. R. Booth, Mrs. Russell Hunter, Miss Edith Thomas.



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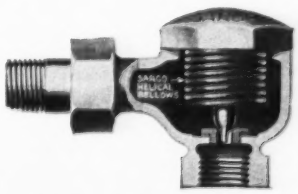


SARCO HEATING SYSTEM

Flentje On Problems of Today

E. L. Flentje discussed three fundamental problems now before the plumbing contractor, at the Illinois convention.

One related to the public utilities, made more critical by the effort at Washington to secure a manufacturers' gas code under which utilities would be able to sell and install all kinds of gas appliances. Mr. Flentje reported that because this code was submitted, the code authority for the plumbing contractors had been unable to get rulings on various points affecting gas equipment.

He favored bringing vigorous pressure on the NRA based on the statement that many utilities do not charge sales expenses against the equipment they sell, relying upon the later gas consumption to return the profit. Independent dealers can not meet such competition and Mr. Flentje pointed out that the NRA should be kept informed of the type of competition which independent dealers would have to meet if this manufacturers' gas code were adopted. He said, however, the only reason that the code was still being delayed was due not to the above fact but to a legal question covering the right of a national code to control companies which are regulated by state commissions.

The second problem, discussed by Mr. Flentje, was in reference to the distribution system. The NRA codes in this industry, controlling manufacturers, wholesalers and contractors, were independently secured and are not co-ordinated. As a result the NRA program could not bring stability into the industry so that the older conference system had to be revived. An intelligent solution of the distribution problem was thus returned to the members of the industry.

The third problem, and the most important in the judgment of Mr. Flentje, was the competition with mail order and chain stores. In that direction, the NRA had not proved of much help. Many people outside this industry do not appreciate the background nor the close relationship between plumbing and health.

The mail order organizations were placed under a blanket retail code and thus were not bound by the wage and hour provisions which control the independent plumbing dealer. Code control of plumbing sales by mail order companies had proved difficult. Mr. Flentje said that in some cases the installation was being handled separately from the fixture sales. In certain cases, such organizations after selling the fixtures, assume the position of the agent for the consumer in order to meet the installation problem without coming under the plumbing code. Mr. Flentje recalled that many master plumbers serve as installers for such equipment, complicating the task of meeting such competition.

He told of the active work done by the plumbing code authority at Washington in meeting the mail order problem and urged continued action by the industry.

Several visitors from Wisconsin were at the Illinois meeting headed by John P. McCoy, Fond du Lac, state president, and Robert T. Morrill, Beloit, state vice-president. Others were Henry C. Weber, president, of Milwaukee, Otto A. Waskow, of Milwaukee, and George Toepfer, Wisconsin code executive.

George Masterson, an organizer for the journeymen, showed the advantages of membership and activity in associations. He feels that masters and journeymen are working in Illinois to secure code enforcement and that such a spirit would make the best features of the code permanent whether or not congress continued NRA. He feels that the welfare of the journeymen will continue to rest in working for individual contractors rather than in employment by corporations.

William J. Spillane of James B. Clow & Son Co., Chicago, told the Illinois convention that the wholesalers' code is dormant and will be until NRA has decided what to do with certain groups. These groups, Mr. Spillane feels, should be made to observe the wholesale code if it is to be worth enforcing. He feels that the entire NRA program to be successful, requires that the chain stores be brought under adequate code regulation.

John Howatt, chief engineer of the board of education of Chicago, discussed from the standpoint of an observer some of today's trends. He feels that amid the welter of talk and plans, most of which are worthless, worth while progress is being made. A wrong sense of values had prevailed with emphasis on property and assets, glitteringly presented so that we confused their value. The past few years have shown the impermanence of such values so that Mr. Howatt feels we are entering a cycle of finer living with better objectives. The new expedients, codes and all, will fail unless a spirit of fair dealing controls our actions. Just now the government is trying to impose and enforce codes. The prospect is that private business will again take over its natural task of regulating itself for the good of the greatest number.

Discussing school buildings, Mr. Howatt said monumental structures are no longer in favor, emphasis being on a safe and sensible building to house an educational program. As educational methods advance, school buildings will reflect that progress. High sanitary standards are certain with air conditioning in prospect as a feature of the newer buildings.

School building construction in 1929 aggregated about $392,000,000; in 1933 it was $40,000,000; in 1934 it advanced to $115,000,000 and the outlook for 1935 is an expenditure of $125,000.000,

Batavia Plumbing Contractors Want Plumbing Code for Rural Sections

A petition signed by fourteen plumbing contractors of Batavia and Le Roy, N. Y., has been presented to the Board of Supervisors of Genesee County asking a sanitary code requiring inspection and approval of plumbing work in rural sections as well as in the city. Contractors are hopeful that such a code will be made mandatory in order to safeguard public health and protect rural residents against imperfect jobs by incompetent workers. Such a code would also prove beneficial to contractors in providing more work for those qualified to do such work, whereas many of these jobs at present are done by workers with little knowledge of plumbing work, jobs which may prove to be a menace to the health of the community.

C. D. Harris Lectures on "What Men Do for Gold"

Charles D. Harris of the Oakland Plumbing Company, 4014 Cottage Grove Avenue, Chicago, entertained a number of his neighbors at the South Congregational Church on Tuesday evening, January 8th, with a lecture entitled "Three Years Above the Arctic Circle" or "What Men Do for Gold." This is an illustrated story of an Alaskan prospector in the gold rush of '98, told by Charles D. Harris, with the first set of pictures ever taken above the Arctic Circle.

Harry F. Ferguson of Springfield, Ill., chief engineer of the state division of sanitary engineering since 1919, died January 16th at the University of Illinois Research Hospital, in his 48th year. He had been employed by the state since 1912, and served with the A. E. F. during the World War. He was professor of public health at the University of Illinois and was a former president of the American Society of Civil Engineers. He was on the program and scheduled to speak before the Illinois Master Plumbers' Convention on the "Pollution of Water Supplies Through Faulty Plumbing."

WOMEN'S ACTIVITIES

By DOROTHY EDWARDS

Auxiliaries Back National Sanitation Program

As some of you know by reading the trade papers, our Auxiliary is trying to start a movement which will make the public more conscious of sanitation and more conscious of the out-of-date fixtures in the home, and of conditions in public places that are sometimes intolerable. The state of New Jersey and also New York have adopted this sanitation movement and are getting results. I hope that our Women's Auxiliaries in other states will adopt this and become a part of a movement that we are trying to make National in its scope. Some other states are getting results so why should not we be able to help the master plumbers, help some of them get jobs of replacing and overhauling.

I think, up to the present time, a great many of us have thought that we would wake up some morning and find prosperity back. But I think it is coming back slowly and it is up to us to use every means to help it. One of the greatest means that can be used for the return of prosperity is to stick together and get behind a movement like this. The master plumbers and their wives should help us get an Auxiliary where now we are not represented. Then the Auxiliaries, keeping their eyes open for the conditions that I spoke of, and being earnest in their desire to help the industry as a whole, perhaps before this year is over will help to bring about quite a decided improvement in our industry. The State or National offices of our Auxiliaries are always willing to give information and help organization.

By MRS. ROBERT LISS,
President, Women's Auxiliary, N. A. M. P.

Illinois Auxiliary Holds Annual Convention

New officers were elected by the Women's Auxiliary of the Illinois Master Plumbers Association, which held its 12th annual convention at Springfield on January 23. Mrs. Fred W. Hager of Chicago was re-elected president. Mrs. Dick Johnson of Champaign becomes first vice president, Mrs. A. L. Wargo of Eureka, second vice president, and Mrs. O. R. Larson of Chicago, third vice president. Mrs. J. McKenna of Kenilworth was elected treasurer, and Mrs. J. Zajicek of Cicero becomes secretary.

The following served as chairmen of the convention's committees: Mrs. Dick Johnson of the auditing committee, Mrs. Walter G. Compton, Chicago, of the nominating committee, and Mrs. George H. Matthews, of Chicago, as memorial conductor.

While the Illinois Master Plumbers' Association was in convention, the ladies were entertained by the Springfield members, the climax being a tea and musicale at the Governor's mansion.

Nassau County Auxiliary Installs New Officers

The Women's Auxiliary to the Nassau County Master Plumbers' Association held its annual installation of officers at the I. O. O. F. Hall in Hempstead, Long Island, N. Y., on Wednesday evening January 16th. Mrs. Wm. W. Metcalf of Rockville Centre, president of the Women's Auxiliary of the State of New York, installed the new officers, assisted by Marshal Mrs. Henry Krug of Bellemore.

The new officers are: President, Mrs. Edw. Selzer, Hempstead; vice president, Mrs. Wm. Bloeth, (re-elected), Rockville Centre; secretary, Mrs. John Nielson, Hewlett; treasurer, Mrs. James Metcalf (re-elected), Rockville Centre.

Mrs. Wm. W. Metcalf

After the installation refreshments were served. A fine entertainment was also staged, consisting of music, singing and dancing. Many members of the Master Plumbers' Association and other guests were in attendance, among them, Wm. E. Foley and Nicholas Donohue, president and vice-president, respectively, of the New York State Association of Master Plumbers; Matthew J. Kennedy, president of the Greater New York Master Plumbers' Association, and Wm. McNaught, president of the Master Plumbers' Association of Rockaway, and their wives.

Boston Auxiliary Had Pleasant Christmas Party

The Women's Auxiliary to the Boston Association of Master Plumbers held its regular monthly meeting at the home of Mrs. James A. Cotter, president of the auxiliary, and it took the form of a pleasant Christmas party. After the meeting Santa Claus presented each lady with a gift and the gentlemen were also remembered with appropriate souvenirs. Refreshments were served and the hour was late when the party came to an end.

The Boston Auxiliary also held a benefit whist and luncheon party at the Richardson Shop in Boston on December 14, with a good attendance. The money raised at this party was

distributed at Christmas time among needy families, and given to the Boston Post Santa Claus and the Veterans' Stocking Fund.

Montclair Women's Auxiliary Holds Annual Meeting

The Women's Auxiliary of the Master Plumbers Association of Montclair, Bloomfield, Verona and Vicinity recently held its annual meeting in Montclair, N. J., and elected the following officers for the coming year: President, Mrs. George Garritson; vice-president, Mrs. Jas. D. Hayes; treasurer, Mrs. H. J. Williamson, and secretary, Mrs. Jas. Fitzgerald.

This auxiliary is now making preparations for a card party to be given in the near future.

Albany and Rensselaer Auxiliary Holds Successful Christmas Party

The Women's Auxiliary of the Master Plumbers' Association of Albany and Rensselaer, N. Y., held a most successful Christmas party at Kellers Tavern in Albany on Thursday evening, December 20th. Gifts were presented to the 75 persons in attendance, and Christmas Carols were sung.

During the holiday season the Auxiliary provided baskets of food, clothing and coal to needy families.

On Monday evening, January 14, the Auxiliary gave a dinner party for its members at the new Kenmore Hotel in Albany.

The first regular meeting of the new year was held Thursday, January 17th, at the home of Mrs. Jos. Nicklas on which occasion Mrs. Houseweller, Mrs. Omer and Mrs. Nicklas acted as hostesses. 22 members were in attendance. The sanitary program recently sponsored by the Women's Auxiliary to the National Association of Master Plumbers was adopted, and Mrs. Dugan was named as chairman. Every effort will be made to make this program a success. The next meeting of the Auxiliary will be held at the home of Mrs. A. Roos.

Milwaukee Women's Auxiliary Installs New Officers

The Women's Auxiliary of the Master Plumbers' Association of Milwaukee, Wis., held its annual election and formal installation of officers recently. The installation exercises were conducted by Mrs. Rose Friend, national chaplain, assisted by Mrs. Fred Westfahl, marshal, and Mrs. Geo. Wussow, piano accompanist.

The officers installed were Mrs. Jacob Schuh, president; Mrs. Geo. J. Stoehr, 1st vice president; Mrs. Edwin Thill, 2nd vice president; Mrs. A. A. Hoffman, 3rd vice president; Mrs. J. J. Mueller, recording secretary; Mrs. J. E. Grimm, corresponding secretary; Mrs. Peter Vogt, treasurer; Mrs. F. G. Colwell, assistant treasurer; Mrs. Rose Friend, chaplain; and Miss Clara J. Wittig, publicity.

The directors are Mrs. Jacob Schuh, Mrs. Charles Heffling, Mrs. Charles Pelunek, Mrs. Otto A. Waskow, Mrs. F. C. Kuetemeyer, Mrs. Walter Dusold, Mrs. Charles Priegel, Mrs. John Stemper, Mrs. Fred Westfahl, Mrs. Henry Weber, Mrs. Richard Wenzel, Mrs. O. A. Dittmer, and Mrs. David Stern.

The board of directors is composed as follows: Mrs. Jacob Schuh, Mrs. Walter Dusold, Mrs. Geo. J. Stoehr, Mrs. Edwin Thill, Mrs. A. A. Hoffmann, Mrs. J. J. Mueller, Mrs. John Grimm, Mrs. Peter Vogt, Mrs. F. G. Colwell, Mrs. Rose Friend, Mrs. John Stemper, Mrs. O. H. Dittmer, Mrs. David Stern, Miss Clara J. Wittig, Mrs. O. A. Waskow, Mrs. F. C. Kuetemeyer, Mrs. Chas. Heffling, Mrs. Chas. Priegel, Mrs. Edwin Dobner, Mrs. Chas. Pelunek, Mrs. Henry Weber, Mrs. Henry Wegner, Mrs. Fred Westfahl, Miss Lois Hanley, Mrs. Geo. J. Bronenkant.

The following committees have also been appointed:

Reception Committee: Mrs. Walter Dusold, chairman, and Mrs. Edwin Thill, assistant chairman.

Entertainment Committee: Mrs. F. C. Kuetemeyer, chairman, and Mrs. O. A. Waskow, assistant chairman.

Sunshine Club, Mrs. O. A. Dittmer.

Publicity, Miss Clara J. Wittig.

Membership, Mrs. David Stern.

Sergeant-at-arms, Mrs. A. A. Hoffmann.

Cincinnati Auxiliary Elects Mrs. Geo. Doench As Delegate to Convention

The Women's Auxiliary to the Cincinnati Master Plumbers' Association held its regular monthly meeting in the Building Industries Building in that city on Tuesday, January 8, and delegated its president, Mrs. Geo. Doench, to attend the annual convention of the Ohio Master Plumbers' Association, which is to be held in Columbus February 4, 5 and 6.

On Saturday, January 5, Mrs. Geo. Doench and daughter entertained Mrs. A. R. McGonegal of Washington, D. C., who was on her way to Chicago to visit Mrs. Robert Liss, president of the Women's Auxiliary to the National Association of Master Plumbers. The ladies enjoyed a delightful dinner at Mariemont Inn, after which they visited points of interest in Cincinnati, such as: Taft's Museum, the Eden Park Conservatory, Burnet Woods, the University and many other historical places.

Denver Auxiliary Will Hold Evening Party

The Women's Auxiliary to the Master Plumbers' Association of Denver, Colo., held its regular meeting on January 7 at the home of Mrs. John Heissler. Following the business meeting, Mrs. Kreidl and Mrs. Julia Hensler and Mrs. Thurston won honors at cards. An evening party is planned for an early date.

St. Louis Women's Auxiliary Installs New Officers

The Women's Auxiliary to the Contracting Plumbers' Association of St. Louis, Mo., held its installation dinner at the home of Mrs. Barney Braun at 4521 South Compton Avenue in St. Louis. Mrs. Braun proved an ideal hostess, and the dinner was delicious. Following the repast the following officers were installed: President, Geraldine Suda; vice president, Mrs. Harry Schlapprizzi; secretary, Mrs. E. E. Manahan; treasurer, Mrs. John D. Els; and sergeant-at-arms, Mrs. Barney Braun.

After the meeting adjourned the members played bunco, in which the prize winners were Mesdames Manahan, Suda, Ryffel and Schneider.

Rock Island and Moline Auxiliary Re-Elects Officers

The Women's Auxiliary of the Master Plumbers' Association of Rock Island and Moline, Ill., held its annual meeting on Monday afternoon, January 14, at the home of Mrs. James Cunningham, 3615 Fourteenth Street, Rock Island. All the officers were re-elected as follows: President, Mrs. Albert Rosenfield; vice-president, Mrs. Fred Bennett; secretary and treasurer, Mrs. James Cunningham; corresponding secretary, Mrs. Charles Stange of Moline.

Following the business meeting, bridge was played, in

which the prize winners were: Mesdames Arthur N. McNeill, Peter Kale and Charles Stange.

The next meeting will be held on February 11th at the home of President, Mrs. Albert Rosenfield, 2029 Twenty-ninth Street, Rock Island.

Women's Auxiliary Is Organized at Racine, Wis.

Owing to certain provisions concerning the division of various districts into zones, in accordance with the NRA code, the Women's Auxiliary of the South Shore Master Plumbers' Association has been dissolved and the Women's Auxiliary to the Master Plumbers' Association of Racine, Wis., has been organized, and the new auxiliary has elected the following officers: President, Mrs. Louis Schoenleben; vice president, Mrs. John Feiner; secretary, Nels Holgard; treasurer, Mrs. J. Martin.

Following the business meeting, refreshments were served by Mrs. Len Pugh. Mrs. Otto H. Beetcher will be hostess at the February meeting.

Minneapolis Auxiliary Sponsors Successful Window Display Contest

The Women's Auxiliary to the Minneapolis Retail Plumbers' Association sponsored a window display contest during the holiday season. The contest committee consisted of Mrs. Otto Nelson, chairman; Mrs. Oscar G. Johnson, Mrs. Frank Lamson, Mrs. B. E. Miars, Mrs. Fred Bartel and Mrs. Walter Dahlstrom. Letters and telephone calls to every plumbing shop in the city explained the aims of the contest and asked every plumbing contractor to participate.

Serving as judges were: Carl Rye, Victor Adams and C. R. Anderson. In their report, the judges said that they had spent a great deal of time studying the display windows of the contestants. These windows were carefully inspected both by day and by night, and their value of suggestive selling was given due consideration, as well as their originality of design.

The contesting displays were all excellent, and the judges found the task of selecting the winners an exceedingly difficult one. The plumbers' window displays seemed to be much better in every locality than displays made in other lines of business. The judges were of the opinion that it would prove helpful to the trade if a similar contest could be held every year.

The prize winners were as follows:

First prize, Klingelhuts Plumbing & Heating Co., 5320 Lyndale Avenue, South, Minneapolis, Minn.

Second prize, Otto T. Nelson Plumbing & Heating Co., 3116 Penn Avenue, North, Minneapolis, Minn.

Third prize, Cedar Plumbing & Heating Co., 323 Cedar Avenue, Minneapolis, Minn.

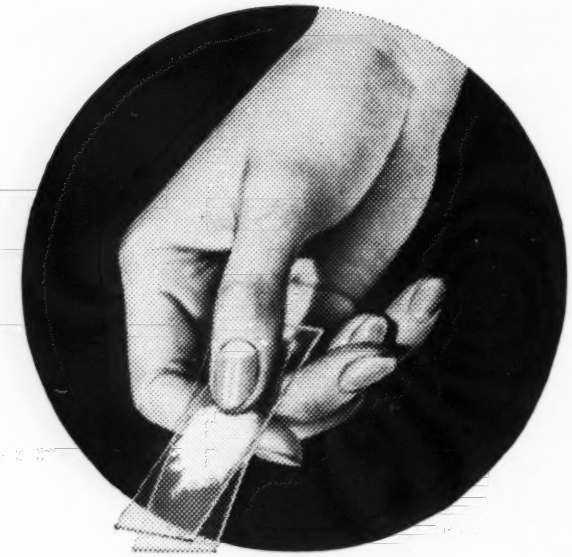
Boston Auxiliary Entertained at Home of Mrs. J. J. Downey

The Women's Auxiliary to the Master Plumbers' Association of Boston and vicinity held its regular monthly meeting at the home of Mrs. John J. Downey at 15 Richmond Street, West Roxbury, Mass., on Tuesday evening, January 15th, at which several contributions to the flower fund were received. Arrangements were also made for the making of a tulip blanket.

Following the business meeting, refreshments were served, after which the guests were entertained by Miss Catherine Downey who rendered several selections on the piano.

The Auxiliary will hold its next meeting February 19th at the home of Mrs. Andrew F. Curtin in Medford, Mass.

When the Time Comes
. . . to clean and overhaul heating systems for your customers this Spring, take a look at their entire plumbing equipment.
Begin with BEAD CHAIN*
Suggest bright new BEAD CHAIN* on stoppers, for shower curtain holdbacks, on ventilating and heating systems. It costs the property owner but little, means some extra profit for you, and opens the way for other plumbing renovations and improvements.
Keep BEAD CHAIN* on hand in bulk and in assemblies for such work. Your regular plumbing distributor will supply you.
USE
BEAD CHAIN
FOR PLUMBING
Trade Mark Reg. U. S. Pat. Off.
NRA
THE BEAD CHAIN MANUFACTURING CO.
BRIDGEPORT, CONNECTICUT



Scratchy cleansers can ruin your products and reputation—recommend

OLD DUTCH

made with pure **SEISMOTITE**

REG. U. S. PAT. OFF.

The service you give and the excellence of your installations are important—but no more important, in the eyes of your customers, than the service your products give. That's why it pays to recommend cleaning only with Old Dutch. Then you *know* that sinks, wash basins and bathtubs will retain their brilliant new luster through many years of use.

Old Dutch is different in its cleaning action because it is made with Seismotite (pronounced Sīs'-mo-tīte) a scratchless cleaning and polishing material scientifically processed and combined with other valuable ingredients. It polishes as it cleans, goes further and costs less to use, and doesn't scratch because its particles are flaky and flat-shaped, like this . Old Dutch contains none of the harsh, chunky grit found in ordinary cleansers.

MAKE THIS TEST. Put a little Old Dutch between two pieces of glass and rub them together. You do not feel or hear any harsh grating and no scratches are made in the glass. Try the same test with other cleansers and notice the difference. And remember, *porcelain is glass, too.*

Doesn't Scratch

New Contractors and Incorporations

San Francisco, Calif.—George N. Wienholz has opened a plumbing and heating business at 765 Minna Street.

San Francisco, Calif.—The Campbell Plumbing Service is the name of a new company which has just started in business at 16 Mission Circle.

Gloucester, Va.—The Babb Heating Company, Inc., has been incorporated with a capital of $100,000. O. A. Bloxon is at the head of the new venture.

Decorah, Iowa.—H. H. Susland and S. L. Winslow of Davenport, Iowa, have formed a partnership and will soon open a plumbing and heating business here.

Detroit, Mich.—The McBrearty & Barnes Company of 1526 Third Street has been incorporated with a capital of $2,000, to conduct a plumbing and heating business.

Portland, Oreg.—Richmond Plumbing & Heating Company is the name of a new business at 3245 Southeast Division Street. The proprietors are Joseph Van Hoomissen and L. M. Fuller.

Salt Lake City, Utah.—The Haydn Long Plumbing and Heating Company, 138 East Second South Street, has been incorporated with a capital of $5,000. The officers of the company are: John P. Koch, president and treasurer; Haydn Long, vice-president, and Christian W. Koch.

Convention Dates

February 4, 5 and 6, 1935.—OHIO.—The annual convention of the Ohio State Association of Master Plumbers, at Columbus, Ohio, with headquarters at the Deshler Hotel.

February 25 and 26, 1935.—MINNESOTA.—The annual convention of the Minnesota State Associaton of Master Plumbers, at Virginia, Minn., with convention headquarters at the Virginia Recreational Building, and with hotel headquarters at the Ormonde Hotel.

April 2 and 3, 1935.—N. O. B. D. A.—Annual convention of the National Oil Burner Dealers Association, in New York City, with headquarters at the Pennsylvania Hotel.

April 29 and 30, 1935.—MISSOURI.—The annual convention of the Missouri State Association of Master Plumbers, at Kansas City, Mo.

April 30, 1935.—MASSACHUSETTS.—The annual convention of Massachusetts State Association of Master Plumbers, at Boston, with headquarters at the Copley Plaza Hotel.

May 4, 1935.—IDAHO.—The annual convention of the Master Plumbers of the State of Idaho, at Idaho Falls, Idaho, with headquarters at the Bonneville Hotel.

May 6 and 7, 1935.—FLORIDA.—The annual convention of the Florida State Association of Master Plumbers, at Orlando, Fla., with headquarters at the San Juan Hotel.

May 14, 1935.—SOUTH CAROLINA.—The annual convention of South Carolina Master Plumbers Association, at Anderson, S. C.

May 15, 16, 17 and 18, 1935.—NEW JERSEY.—The annual convention of the New Jersey State Association of Master Plumbers, Inc., at Jersey City, with headquarters at the Plaza Hotel.

May 20, 21, 22 and 23, 1935.—CALIFORNIA.—The thirty-fourth annual convention of the State Association of Master Plumbers of California, at Santa Monica, Calif., with headquarters at the Miramar Hotel.

May 20, 21 and 22, 1935.—PENNSYLVANIA.—The annual convention of the Pennsylvania State Association of Master Plumbers, at Harrisburg, Pa., with headquarters at Penn-Harris Hotel.

May 20, 21 and 22, 1935.—H. P. A. C. C. N. A.—The forty-sixth annual convention of Heating, Piping and Air Conditioning Contractors National Association, in Cincinnati, Ohio, with headquarters at Hotel Gibson.

June 25, 26 and 27, 1935.—N. A. M. P.—The 53rd annual convention of the National Association of Master Plumbers, at Chicago, with headquarters at the Stevens Hotel.

October 14-18, 1935.—A. G. A.—The seventeenth annual convention of the American Gas Association, at Atlantic City, N. J.

BAR SERVICE

Ideas for Those Who Sell and Install Mechanical Equipment for Restaurants and Taverns

Outline of Kitchen Needs for Modern Restaurant

By ARTHUR BRANCH

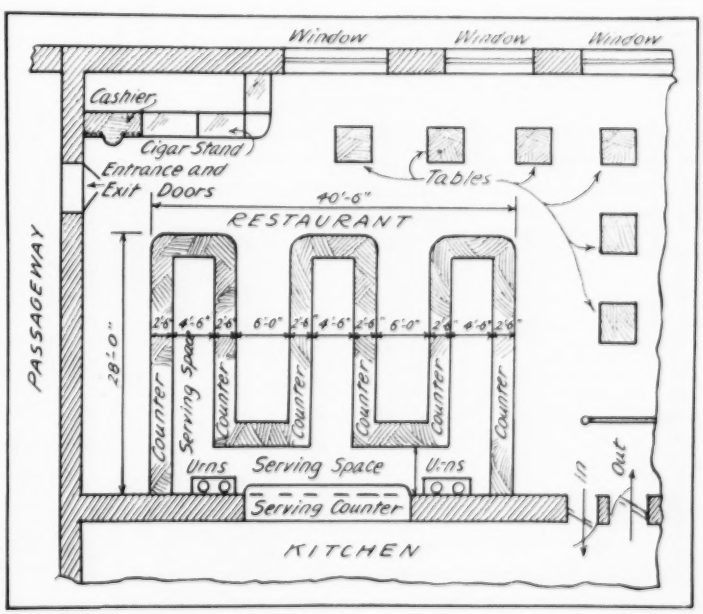
FOR contractors not entirely familiar with kitchen work the following study of a kitchen for a 100 customer restaurant of a high class type may be instructive particularly along the line of the equipment likely to be encountered in the ordinary kitchen and the service piping required for same. In this particular installation the bakery and preparation rooms are located in the basement with a dumb waiter service up to the short order kitchen on the main floor, the short order kitchen supplying the restaurant through serving counters between the restaurant and the kitchen. Waitress service is provided and no cafeteria arrangement is necessary.

It must be admitted at the start that the kitchen equipment people made a particularly complete job of this installation but on this very account it is all the more valuable from the study standpoint as it includes almost every conceivable item which would be encountered in kitchen work. For example, in the basement preparation rooms the equipment consisted of

1 Pastry Bake Oven, 8 ft. by 6 ft., 6 in.
1 Proof Oven, 5 ft. by 2 ft., 6 in.
1 Tilting Kettle
1 Deep Fat Frier
1 Smooth Top Range
1 Mixer.
1 Pan Rack
1 Landing Table
1 Marble Top Table with Bins below.
1 Work Table with Cabinets over.
2 Two-compartment Sinks with Drainboards
1 Pot Sink
1 Work Table with Shelving over.
China and Equipment Storage Shelving
1 Chopper
1 Singer
1 Chopping Block
2 Cook's Tables
1 Work Table
1 Single Sink and Drainboard
1 Scale
1 Desk
1 Ice Crusher

On the main floor in the short order kitchen the equipment consisted of

2 Broilers
1 Five-section Range
1 Toaster
1 Griddle
1 Waffle Iron
1 Egg Boiler
1 Deep Fat Frier
1 Steamer
1 Ice Cuber



Here is a plan view of the restaurant serving space which is described in this article. It is designed for 100 customers

DRAUGHT BEER COOLERS

The new Uniflow automatic electric draught beer cooler has astounded skeptical dispensers. It outmodes all other types of coolers. It incorporates new and patent applied for features which guarantee dependability at all times. Write for information today and be the first to offer it in your community.

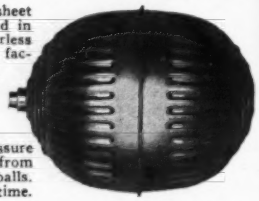
Uniflow Manufacturing Co., Dept. D, Erie, Pa.

Makers of Fine Precision Equipment Since 1921

Water Systems—Water Softeners—Water Filters—Beer Pumps
Beverage Coolers — Electric Refrigeration — Cellar Drainers

A Name and a Float That Wear Well!

Made of heavy gauge sheet copper, two sections seamed in securely, Reichert Solderless Floats stand up even in factories, schools and public buildings. The reinforced spud makes them the strongest on the market.



Best materials, thorough inspection and testing assure long, satisfactory service from Leader Rubber Tank balls. They seat perfectly every time.

The Reichert Float & Mfg. Co.
2238 Smead Ave. Toledo, Ohio

PROFITABLE SALES
All the Year Round with
HYDRO-FLUE HUMIDIFIER

The **original, patented** Hydro-Flue, that your customers want. Does away with the unsightly, old-style stove pipe. Keeps kitchen walls clean. Traps grease and dirt. Humidifies. Provides better oven control. Handsome appearance, with highly polished base and porcelain tops in ivory, apple green, black and white.

Nationally Advertised—Popularly Priced
Known to millions through advertising in Saturday Evening Post, Literary Digest, Ladies' Home Journal, etc. **Write today for prices and full information.**

Ward Mfg. Co., 109 E. Milwaukee, Detroit, Mich.
Attractive proposition for representatives now covering certain territories with other lines.

THE "MODERN" RANGE BOILER

30, 40 and 50 Gallons
200, 250 and 300 lb. Test

Pat. No. 1853949

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

Sold Through Wholesalers Only

HAYES MFG. CO., Paterson, N. J.
Established 1870

1 Peeler
1 Consomme Tank 3 ft., 6 in. by 2 ft., 6 in.
1 Heater
1 Cold Pan
1 Steam Table
1 Bain Marie
1 Carving Shelf
1 Ice Cream Cabinet
1 34 ft. Serving Counter
Shelving over Counter
1 Work Table
1 Cook's Table
1 Oyster Preparation Table with Shelving over
1 Oyster Stewer
2 Single Sinks with Drainboards
2 Double Sinks with Drainboards
1 Triple Sink with Drainboards
2 Kettles
1 Mixer
1 Tahara
1 Linen Closet
1 Silver Storage Cabinet
2 Work Tables
1 Steel Mat 20 ft. by 2 ft.
1 Pot Rack 6 ft. by 2 ft., 6 in.
1 Buffer
1 Dishwasher
1 Clean Dish Table
1 Soiled Dish Table
Shelving

In the restaurant proper (See Fig. 1) the equipment consisted of

1 Lunch Counter 150 ft. long
6 Tables, 3 ft. by 3 ft.
76 stools
24 Chairs
2 Display Cases
2 Coat Racks
1 Cashier's Desk
1 Cigar Counter
2 Cashier's Chairs
2 Serving Tables
2 Urn Stands and Cup Warmers
4 Combination Urns
2 Cream Urns

Besides this there was provided a Chef's Office, a Male Help's Toilet Room with

2 Water Closets
2 Urinals
2 Lavatories,

a Female Help's Toilet with

2 Water Closets
2 Lavatories,

and a Female Patron's Toilet Room with

1 Watercloset
1 Lavatory

a Male Patron's Toilet Room with

2 Lavatories
1 Watercloset
1 Urinal

Hoods for removing smoke and odors are installed over the

Pastry Oven
Fryer
Ranges
Dish Washer
Urns

Not all of this equipment requires service piping but many pieces must be connected to hot and cold water, waste, vent, steam and return and gas lines.

Oakland Master Plumbers' New Year's Party a Success

With a truly optimistic and happy feeling for 1935, Oakland (Calif.) Master Plumbers' Association members and friends took part in a gala New Year's Eve party at Firmin Hall, Oakland. A well planned program of dancing and good cheer kept the crowded hall in a merry mood throughout the evening. N. J. Previati, chairman of the entertainment committee, assisted by D. W. Durant, Robert Dunsan, Jr., H. P. Salisbury and Fred H. Crane, kept the party a-going into the wee small hours.

Buffalo, N. Y., Wants Journeyman Plumbers to Pass Qualifying Examinations

If the corporation counsel of Buffalo, N. Y., finds that a resolution introduced in the common council is legal, all journeyman plumbers who work in that city will have to pass a qualifying examination before a municipal board to prove their fitness to work as such. At the present time,

anyone can work at plumbing by registering his name with the board as a plumber. This has had the effect of permitting some out-of-town plumbers who are not qualified to obtain work at the expense of qualified local men.

Birmingham Plumbers Back Federal Housing Campaign

As an aid to the campaign of the Federal Housing Administration the Birmingham, Ala., Association of Master Plumbers has offered and is making free estimates on the cost of plumbing and heating in any modernization jobs proposed by citizens of the city. Property owners may either call the Junior Chamber of Commerce which is in charge of the campaign in Birmingham or else call the nearest contractor, according to Charles Mandy, president of the Birmingham Master Plumbers Association.

Appoints Milkman as Plumbing Inspector

Mayor Marx of Oneonta, N. Y., recently appointed a new plumbing inspector for his city and selected a milkman named Goebel instead of a qualified plumber. The chairman of the Examining Board decided that the Board would not sit with him, so the Mayor discharged the Examining Board. The New York State Association of Master Plumbers has applied for Quo Warranto proceedings before State Attorney General Bennett for the removal of Goebel and the reinstatement of the Board.

In Newburg, N. Y., a plumber loaned his license to a mail order house for installation of material. The Plumbing Examining Board has revoked the plumber's license.

New Trade Literature

Armstrong Bros. Tool Co.'s New Catalog

The Armstrong Bros. Tool Co. of Chicago, Ill., has just issued its new general catalog B-35 consisting of 242 pages, 4¼ x 6¼ in size. This catalog illustrates and describes in detail this concern's pipe tools including dies, stocks, vises, cutters, pipe wrenches, tongs, etc., tool holders and drop-forged clamps, etc. It announces 35 new lines or additions including vanadium steel detachable head socket wrenches, carbide cutters and tool holders, and a line of receding type pipe threaders. The value of this catalog is greatly enhanced by the addition of a complete index which makes it exceedingly handy for quick reference.

Circular on Water Conditioner

The Western Carbon Company of New Haven, Conn., has just issued a circular illustrating and describing its water conditioner for home use, a device which is described as furnishing clear, sparkling, odorless and colorless water for drinking and cooking. It is designed to be attached to the domestic water supply system and it depends on activated carbon containing 86% fixed carbon to remove all impurities that cause unpleasant tastes and odors. This conditioner is constructed of non-corrosive material and will therefore last a long while.

Features Water Softeners for Household and Commercial Use

The H. L. G. Co., of Kalamazoo, Mich., has just issued a new list of its water softeners for household and commercial use. These devices are illustrated and described in detail and the value of this list is greatly enhanced by the addition of many tables of capacities, specifications and sizes. These water softeners have a mineral retaining screen which

Bronze Fittings

that are individually tested by air pressure under water

Buy Kennedy Valves and Pipe Fittings from Your Distributor

WITH Kennedy Bronze Fittings you are doubly sure of protection against leaks. Their high grade metal is your first assurance, for these fittings are made of the same tough, strong, uniform red metal that is used in Kennedy Bronze Valves. Thorough and individual testing is your second assurance, for every Kennedy Bronze Fitting is separately tested by air pressure under water before leaving the factory.

Besides being leakproof, Kennedy Bronze Fittings, like Kennedy Malleable Iron Fittings, are sturdily proportioned, attractive in appearance and accurately machined.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY

VALVES—PIPE FITTINGS—FIRE HYDRANTS

Brass Specialties
of the
BETTER KIND

HEAVY CAST BRASS SINK STRAINERS

MADE IN SEVERAL SIZES

WRITE FOR PRICES

Grand Haven Brass Foundry

GRAND HAVEN MICHIGAN

for your trade library

☆

AIR CONDITIONING SIMPLIFIED

A new book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business. 216 pages, 5½x8¼, bound in cloth—price postpaid $1.00.

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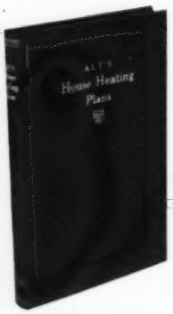

ALT'S HOUSE HEATING PLANS

By Harold L. Alt. Will give the heating contractor the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating equipment has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

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OIL BURNER HEATING

discusses oil burner heating problems from the sale of the job to the operating installation. Every chapter in the book is built upon direct questions asked by heating men. Testing problems worked out show what should be done to test efficiency of installation, how to compare cost of oil or gas heating, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year, etc. Can be used on practically any oil burner installation, and much of the information it contains applies also to gas burning boilers and to stokers. 184 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

☆

500 PLAIN ANSWERS TO DIRECT QUESTIONS

On Steam, Hot Water, Vapor and Vacuum Heating

By Alfred G. King. Covers the science and general practice of heating including modern systems of modified heating explained in a series of plain questions and answers with tables, rules and general information. It makes a splendid text-book for the apprentice and an ideal reference book for master fitters. Has 258 pages, 6x9, bound in cloth. Price, postpaid $2.50.

☆

DOMESTIC ENGINEERING
Book Department
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

is said to prevent any loss of mineral at any time and permitting an unusually high-flow rate for a given size of tank diameter, and the mineral retaining screens are attached to the filling plugs and can therefore easily be removed for cleaning. The specifications and engineering data given in this list have been prepared for the purpose of making it extremely easy to figure out the proper type and size of water softener required for any job.

Circulars Describe Hot Water Heating Specialties

The Penberthy Injector Co. of Detroit, Mich., has just issued two circulars containing illustrations and descriptions of this company's hot water heating specialties, including its water circulator which is designed to be installed in the return line near the boiler with motor in upright position. Flange bolt should be pulled up evenly and just enough to prevent leakage so that the maximum sound insulation is obtained from the gaskets. This circulator forces heated water from the boiler throughout the system immediately whenever the motor is started. This eliminates delay in heat delivery and the fast flow of water over the boiler heating surface increases the rate of heat transfer and efficiency, all of which reduces the fuel bill, as fast flow throughout the piping minimizes heat transmission loss.

Issues New Dealer Catalog of Pumps

Goulds Pumps, Inc., of Seneca Falls, N. Y., has just issued its 1935 Dealer Catalog, describing and illustrating its line of pumps and water systems, including many new and improved products shown here for the first time. This catalog consists of 128 pages, 8½x11 inches in size, and is designed particularly for the plumbing, heating and industrial trade. Its value is greatly increased by the addition of many tables, charts and rules showing and explaining how to compute water requirements, friction loss in piping, head and pressure equivalent, barometric pressure at different altitudes, number of gallons in cisterns and tanks, capacity of steel tanks, capacities of water piping in buildings, etc. An excellent index makes it easy to locate any given item.

Domestic Engineering Issues New Plumbing and Heating Catalog

Domestic Engineering Company, 1900 Prairie Avenue, Chicago, has just issued the 1935 edition of the Plumbing and Heating Catalog, and it is now ready for distribution. The catalog has been revised and many new items are shown. This volume has the distinction of being the only Buyers' Guide in the field and completely covers the Plumbing and Heating Industry.

The new edition contains 447 pages of consolidated catalogs of several hundred manufacturers, showing illustrations, descriptive matter and latest prices. Forty-eight pages are devoted to tables, rules, charts and layout diagrams common to plumbing and heating work.

In the classified section are 397 pages giving the buyer the trade-names, also the manufacturers' names and addresses of virtually every product in the Plumbing and Heating Industry. The following two pages show the names and addresses of the Societies and Associations connected with the Industry. Following this, there appears thirty-five pages with the names and addresses of more than 4,000 manufacturers in the Plumbing and Heating Industry.

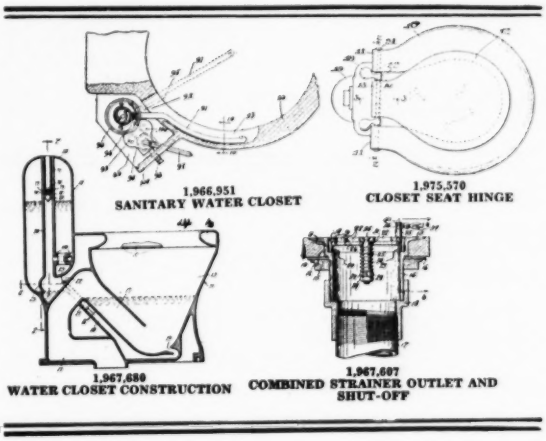
The index method is unique. All products are indexed and cross-indexed for easy reference. Items are not only listed by their proper name, but also cross-indexed under any other name by which they may be commonly called. The volume is a catalog file and purchasing guide combined. It is compact and convenient for desk use. Standard catalog size, 8½ x 11. Bound in Fabrikoid (imitation leather), price postpaid $5.00.

NEW IDEAS FROM PATENT OFFICE

Plumbing Department

1,966,951. Sanitary Water Closet. Ferruccio Guidetti, Elmhurst, N. Y.

1,975,570. Closet Seat Hinge. Charlie R. W. Edgcumbe, Chicago, Ill., assignor to Seats, Inc., Chicago, Ill., a corporation of Illinois.



1,967,680. Water Closet Construction. John N. Murphy, Springfield, Ill., assignor of one-half to August F. Maurer, Springfield, Ill.

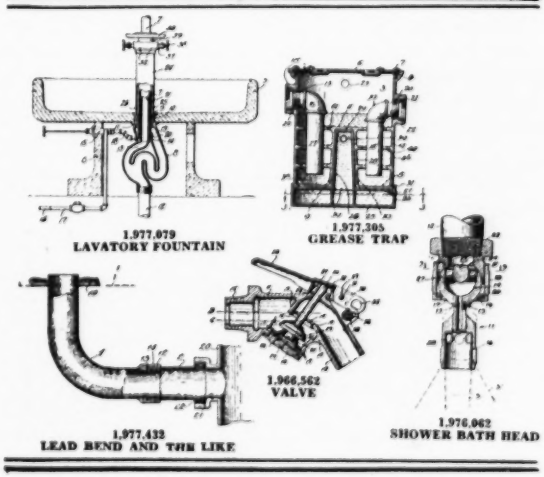
1,967,607. Combined Strainer Outlet and Shut-off. Harry Charmatz, East Orange, N. J.

1,977,079. Lavatory Fountain. Howard A. Mullett and Herman E. Heine, Milwaukee, Wis., assignors to Bradley Washfountain Company, Milwaukee, Wis., a corporation of Wisconsin.

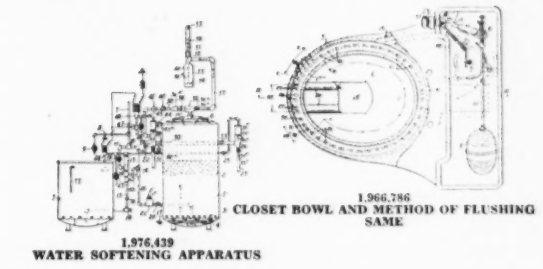
1,977,305. Grease Trap. George J. Dehn, Chicago, Ill.

1,977,432. Lead Bend and the Like. Robert Dick, Bergenfield, N. J., assignor to National Lead Company, a corporation of New Jersey.

1,966,562. Valve. Nathan Roach, Cleveland, Ohio, assignor to The Cleveland Brass Manufacturing Company, Cleveland, Ohio, a corporation of Ohio.



1,976,062. Shower Bath Head. Miles E. Estep, Los Angeles, Calif.

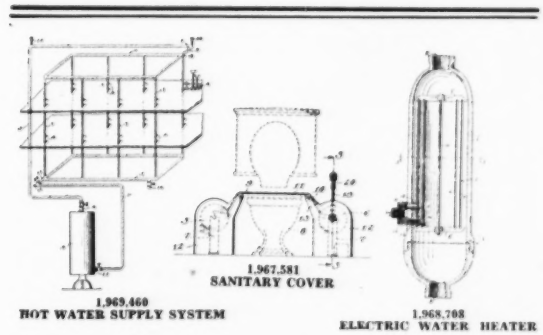


1,976,439. Water Softening Apparatus. Andrew J. Dotterweich, Pittsburgh, Pa., assignor, by mesne assignments, to General Water Treatment Corporation, New York, N. Y., a corporation of Delaware.

1,966,786. Closet Bowl and Method of Flushing Same. George Brain, Tiffin, Ohio, assignor to Standard Sanitary Manufacturing Company, a corporation of New Jersey.

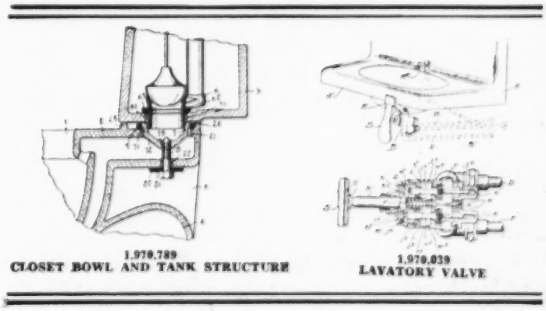
1,969,460. Hot Water Supply System. Frank F. Glenn, Washington, D. C., assignor to Frances W. M. Glenn, Washington, D. C.

1,967,581. Sanitary Cover. Juan Rowie Macias, Ciales, Puerto Rico.



1,968,708. Electric Water Heater. S. Denver Roberson and Philip W. Harmon, St. Louis, Mo.

1,970,789. Closet Bowl and Tank Structure. Carl H. Zwermann, Robinson, Ill.; Helene Zwermann and Carl H. Zwermann, Jr., executrix and executor of said Carl H. Zwermann, deceased.

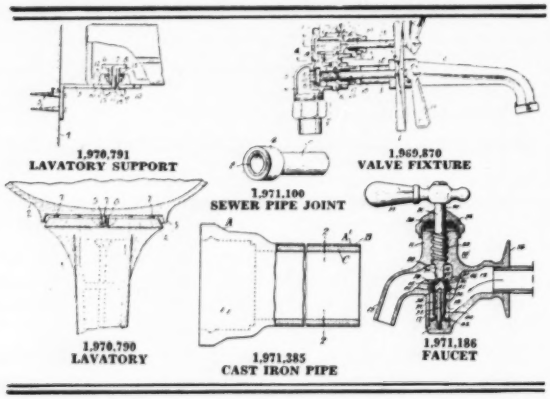


1,970,039. Lavatory Valve. James Fraser, Edge Moor, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware.

1,970,791. Lavatory Support. Carl H. Zwermann, Robinson, Ill.; Helene Zwermann and Carl H. Zwermann, Jr., executrix and executor of said Carl H. Zwermann, deceased.

1,971,100. Sewer Pipe Joint. Albert C. Fischer, Chicago, Ill., assignor to the Philip Carey Manufacturing Company, a corporation of Ohio.

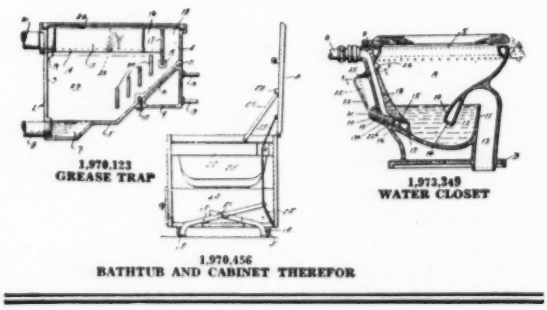
1,969,870. Valve Fixture. Alfred C. Arbogast and Ross Martin, Elkhart, Ind., assignors to Northern Indiana Brass Company, Elkhart, Ind.



1,970,790. Lavatory. Carl H. Zwermann, Robinson, Ill.; Helene Zwermann and Carl H. Zwermann, Jr., executrix and executor of said Carl H. Zwermann, deceased.

1,971,385. Cast Iron Pipe. Norman F. S. Russell and Frederick C. Langenberg, Edgewater, N. J., assignors to United States Pipe and Foundry Company, Burlington, N. J., a corporation of New Jersey.

1,971,186. Faucet. Joseph Kornas, Linden, N. J.

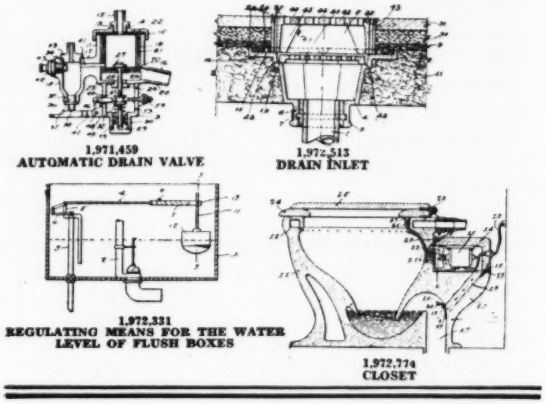


1,970,123. Grease Trap. Edward W. N. Boosey, Detroit, Mich.

1,970,456. Bathtub and Cabinet Therefor. Ernest E. Jellison, Twin Falls, Idaho.

1,973,349. Water Closet. Frederick C. Kruse, Seattle, Wash.

1,966,733. Process for Purifying Water. Hans A. Reimers, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Michigan. The method of removing soluble silica compounds from water which comprises mixing with the water a soluble salt of a metal selected from the group consisting of cadmium, manganese and zinc, in the presence of an alkali.



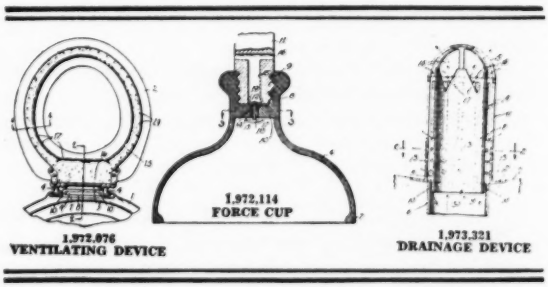
1,971,459. Automatic Drain Valve. Irving J. McGuire, Dolgeville, N. Y.

1,972,513. Drain Inlet. Christian E. Drehmann, Philadelphia, Pa.

1,972,331. Regulating Means for the Water Level of Flush Boxes. Joseph Max Dean, Pottersville, Mass.

1,972,774. Closet. Harold Edward Hartwell, Brooklyn, New York.

1,972,076. Ventilating Device. Guy C. Cross, Watervliet, Mich.



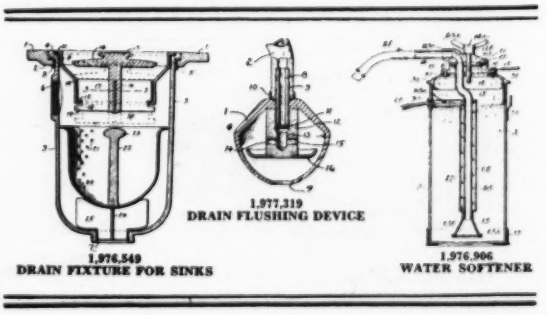
1,972,114. Force Cup. William B. Stephenson, Chicago, Ill., assignor of one-half to George J. Irsch, Harvey, Ill.

1,973,321. Drainage Device. Fritz Schultz, New York, New York.

1,976,549. Drain Fixture for Sinks. Edward Foose, Wheeling, W. Va.

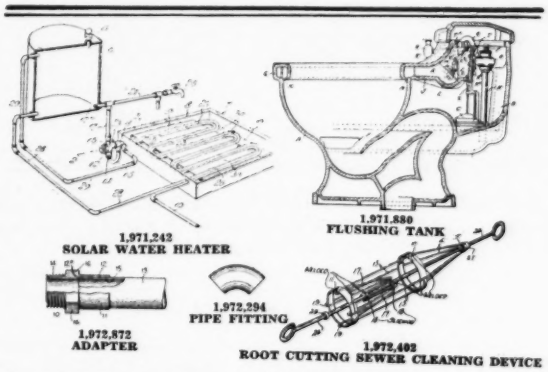
1,977,319. Drain Flushing Device. James J. McEwan, Pontiac, Mich.

1,976,906. Water Softener. Lawrence D. Waldron, Minneapolis, Minn.



1,971,242. Solar Water Heater. Henry A. Wheeler, Miami, Fla., assignor, by direct and mesne assignments, to Universal Twin Coil Solar Heater Company, a corporation.

1,971,880. Flushing Tank. William Taylor, Windsor, Ontario, Canada, assignor to James M. Teahan, Detroit, Mich.



1,972,872. Adapter for Coupling a Pipe or Pipe Fitting. Edward S. Cornell, Jr., Larchmont, N. Y.

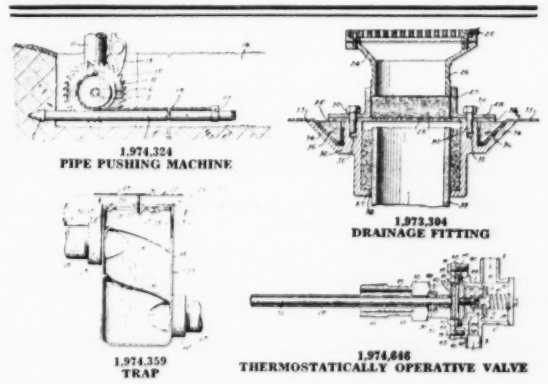
1,972,294. Pipe Fitting. Fred C. Fantz, Webster Groves, Mo., assignor to Midwest Piping & Supply Co., Inc., St. Louis, Mo., a corporation of Missouri.

1,972,402. Root Cutting Sewer Cleaning Device. Charles M. Jones, Colorado Springs, Colo.

1,972,103. Process for Treating Silicon Alloy Castings. James A. Parsons, Dayton, Ohio, assignor to The Duriron Company, Inc., a corporation of New York.

1,974,324. Pipe Pushing Machine. Loren Bailey, Metzger, Oreg.

1,973,304. Drainage Fitting. Edward W. N. Boosey, Detroit, Mich.



1,974,359. Trap. Henry J. Hunt, Chicago, Ill.

1,974,646. Thermostatically Operative Valve. Robert J. Dougherty, Ambler, Pa., assignor to John Wood Manufacturing Company, Inc., Conshohocken, Pa., a corporation of Delaware.

1,975,306. Water Softener. Homer Yates, Regina, Saskatchewan, Canada.

1,975,421. Valve for Flush Tanks. Frank M. Heath, Silver Spring, Md.

More important than the gasket is the filling of SMOOTH-ON No. 3.

SMOOTH-ON No. 3 fills every void in gasket and flange face with a metallic deposit which cannot shrink, shrivel, crack, or blow out and which expands or contracts in unison with the rest of the line.

At a cost of perhaps a cent or two more per joint, this protection usually averages paying a dollar or two in lessened line maintenance expense.

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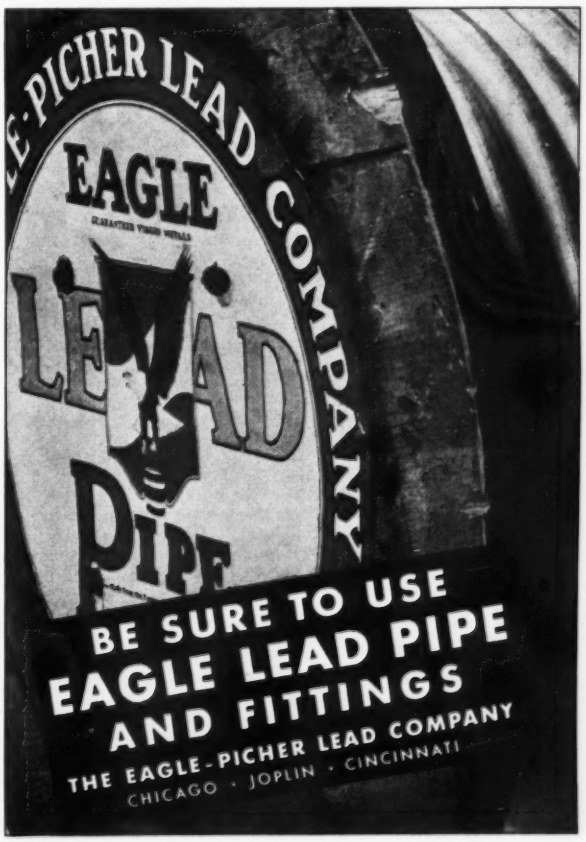

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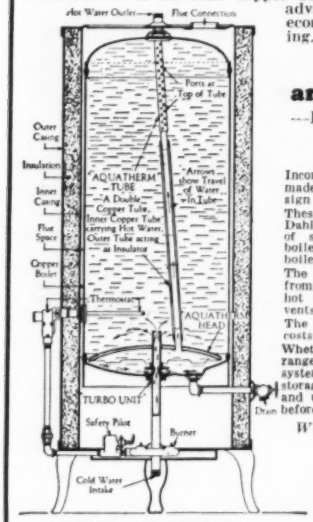

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(Underfire automatic hot water storage system)

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—DAHLQUIST BOILERS—

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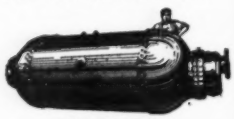

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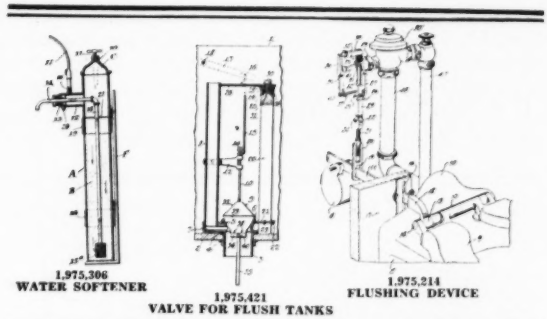


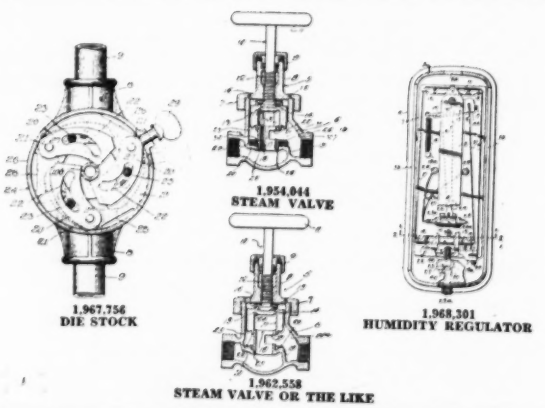
1,975,214. Flushing Device. George Schwibinger, Milwaukee, Wis., assignor to Rundle-Spence Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin.

Heating Department

1,967,756. Die Stock. Tideman M. Lilleberg, Chicago, Ill., assignor to The Nye Tool & Machine Works, Chicago, Ill., a corporation of Illinois.

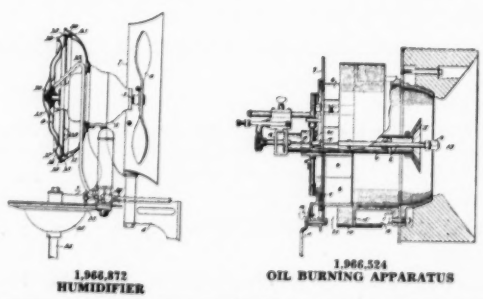
1,954,044. Steam Valve. Joseph R. Guilford, Regina, Saskatchewan, Canada.

1,968,301. Humidity Regulator. Carroll E. Lewis, St. Paul, Minn., assignor to Lewis Air Conditioners, Inc., Minneapolis, Minn., a corporation of Delaware.



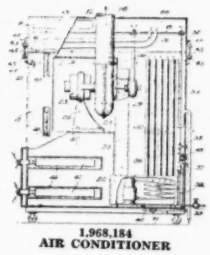
1,962,558. Steam Valve or the Like. Joseph R. Guilford, Regina, Saskatchewan, Canada.

1,966,872. Humidifier. Jerry H. Simpson, Winston-Salem, N. C., assignor to The Bahnson Company, Winston-Salem, N. C., a corporation of North Carolina.

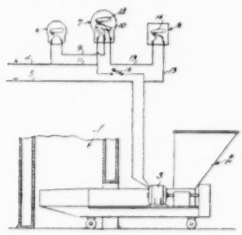


1,966,524. Oil Burning Apparatus. William P. Schenck, Stamford, Conn., assignor to Petroleum Heat and Power Company, New York, N. Y., a corporation of Delaware.

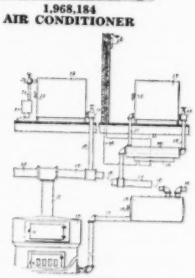
1,968,184. Air Conditioner. John H. Voss and Harry A. Steinmeyer, Chicago, Ill.



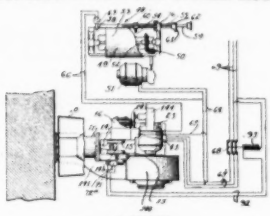
1,968,184
AIR CONDITIONER



1,969,136
CONTROL SYSTEM FOR STOKER MOTORS



1,968,834
VACUUM VAPOR HEATING SYSTEM



1,968,407
DRIVE CONTROL DEVICE FOR STOKERS

1,969,136. Control System for Stoker Motors. David J. Jones, Elmhurst, Ill., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

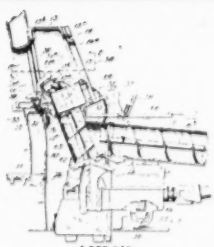
1,968,834. Vacuum Vapor Heating System. W. Bartlett Jones, Chicago, Ill.

1,968,407. Drive Control Device for Stokers. Vernon G. Leach, Chicago, Ill., assignor to Modern Coal Burner Company, Chicago, Ill., a corporation of Illinois.

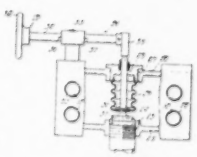
1,967,242. Stoker. William Thompson Hanna, Cincinnati, Ohio.

1,967,010. Radiator Control. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a corporation of Wisconsin.

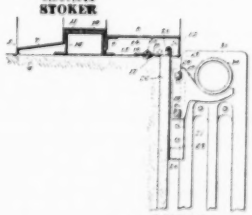
1,967,475. Radiator Support. Charles F. Landolt, Youngstown, Ohio, assignor to Truscon Steel Company, Youngstown, Ohio, a corporation of Michigan.



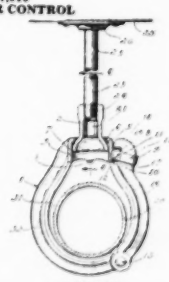
1,967,242
STOKER



1,967,010
RADIATOR CONTROL

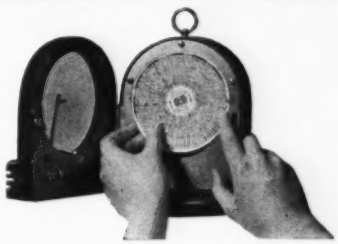


1,967,475
RADIATOR SUPPORT



1,966,899
PIPE HANGER

Practical Recording Thermometer



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A Practical Recording Thermometer gives you a written record, proving your equipment's heating performance. Customers and prospects believe these records when you use them to close sales, help collections, settle complaints.

Practical Thermometers are rugged, simple to use, accurate, portable. Give a 24 hour record of temperatures on a 4 inch chart. Proven by extensive use in sales and service work. One manufacturer ordered 75.

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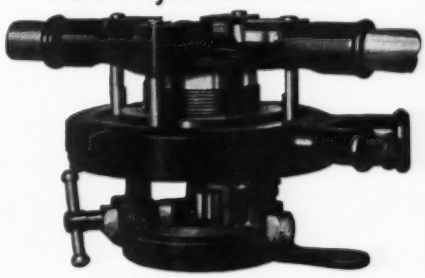
(IMPROVED)
With Adjustable Guide



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The No. 1 and 1A Stocks are identical except that the No. 1A as illustrated is equipped with a ratchet for use where space is restricted.

Both stocks have a capacity of from 1 to 2 inches.

No. 1 Complete.....Net $10.80
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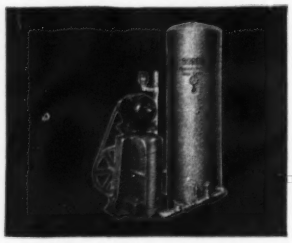
***The* NYE Tool & Machine Works**
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

With a **COMPLETE** *line of* **LOW PRICE QUALITY BUILT** *Water Systems* • • •



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Roper has pioneered in low-priced quality systems and offers you a line of shallow and deep well equipment that sells readily . . . with good profit returns.
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MADE FOR LONG RUGGED SERVICE

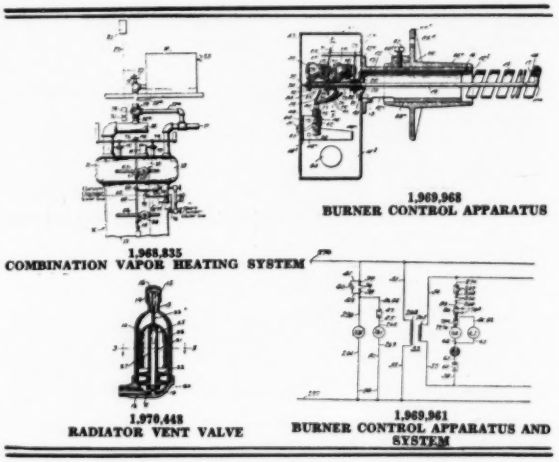
Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.
Tempered Steel
The Worcester line is complete. Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET :: WORCESTER, MASS

1,966,899. Pipe Hanger. Frank E. McCabe, Shaker Heights, Ohio, assignor to The Grabler Manufacturing Company, Cleveland, Ohio, a corporation of Ohio.

1,968,835. Combination Vapor Heating System. W. Bartlett Jones, Chicago, Ill.

1,969,968. Burner Control Apparatus. Henry F. Dever, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware.

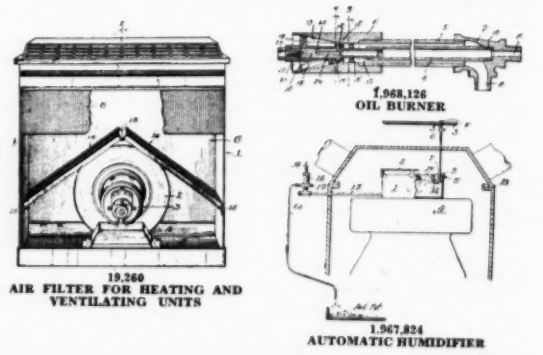


1,970,448. Radiator Vent Valve. Ralph F. Gibbs, Norton, Mass., assignor to The Improved Seamless Wire Company, Providence, R. I., a corporation of Rhode Island.

1,969,961. Burner Control Apparatus and System. John C. Bogle, River Forest, Ill., assignor by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

19,260. Air Filter for Heating and Ventilating Units. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.

1,968,126. Oil Burner, Andrew J. Center, Laredo, Tex.



1,967,824. Automatic Humidifier. Nickolas Jasperson, Oshkosh, Wis.

Coulee, Wash.—S. F. Smith has purchased the plumbing and heating business of Adam Hadlin.

Seattle, Wash.—F. C. De Ryke has moved his plumbing and heating business from 5907 Airport Way to 1126 Bailey Street.

Detroit, Mich.—The Deane-Harris Company, which has been engaged in the plumbing and heating business at 1045 Henry Street, has changed its name to The 1045 Company.

Winners—

(Continued from Page 42)

11. Albert S. Windham, Mgr., Thos. J. Holmes, 117-119 S. Commerce, Natchez, Miss.
12. Joe High, Inc., Joseph High, Pres., 1215 13th St., NW., Washington, D. C.
13. Wm. Beck & Son, 49 N. Dean St., Englewood, N. J.
14. H. J. Brandeles Corp., 431-35 Lafayette St., Utica, N. Y.
15. J. A. Campbell, Home Plumbing & Htg. Co., 135 3rd Ave., E., Twin Falls, Idaho.
16. D. E. Armstrong, Armstrong Bros. Plbg. Co., 800 Washington Ave., Montgomery, Ala.
17. George A. Schuler, 428 N. 8th St., Allentown, Pa.
18. Albert E. Schoeller, Gen. Mgr., Trenton Plumbing, 330 S. Broad St., Trenton, N. J.
19. George A. Mozeik, Mozeik Hdw. Co., 305 4th Ave., Rankin, Pa.
20. Harry W. Shiver, Hope, Arkansas.
21. M. J. Chagnard, Pres., Crescent Plbg. & Htg. Co., Inc., 450 S. 5th St., Louisville, Ky.
22. R. H. Holtzworth, 1244 Fourth Ave., Huntington, W. Va.
23. H. D. Conley, E. D. Conley & Son., 38 Lewis St., Auburn, N. Y.
24. Gresley & Company, 1119 Military St., Port Huron, Mich.
25. H. C. Silvis, 1346 Logan Ave., Sheboygan, Wis.
26. Henry Swade, 2448 So. Hamlin Ave., Chicago.
27. Art Ehrman, 1306 Garfield St., Fort Wayne, Ind.
28. A. S. Blunk Heating Company, 809 E. Broadway, Louisville, Ky.
29. J. Camp, J. Camp & Co., 1093 Natoma St., San Francisco, Calif.
30. George Stoddard, 2112 Berkeley Way, Berkeley, Calif.
31. Albert B. Hultgren, 44 Antwerp St., East Milton, Mass.
32. W. W. Leach, 2423 College Avenue, Fort Worth, Texas.
33. Wm. F. Hildeman Co., 23 Illinois St., Chicago Heights, Ill.
34. Leander Marx, Pres., American Htg. & Plbg. Co., Inc., 829 Baronne St., New Orleans, La.
35. Miss Simonne Drolet, 42 Highland St., Reading, Mass.
36. Edwards Plbg. & Htg. Co., 5310 W. Center St., Milwaukee, Wis.
37. Geo. Poule, Plumbing, 116 E. 4th St., Hobart, Okla.
38. C. J. Godsey, Inc., 914 Arlington Ave., St. Petersburg, Fla.
39. J. J. Brady, 29 Putnam Ave., New Haven, Conn.
40. A. J. Peters & Son, San Jose, Calif.
41. N. S. Larsen Plbg. & Htg. Co., 114 E. Woodruff, Toledo, Ohio.
42. Pelton Bros., 107 N. Main St., Herkimer, N. Y.
43. Robert Gibb, 602 N. P. Ave., Fargo, N. D.
44. P. L. Larsen, Provo, Utah.
45. Roy F. Hiner, 1620 6th Ave., Altoona, Pa.
46. The Reliable Plbg. & Htg. Co., 109 W. University Ave., Champaign, Ill.
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48. Richard's Plbg. & Htg., Rear 214 W. 3rd St., Dover, Ohio.
49. J. H. Ross, Glasgow, Ky.
50. Vreeland & Tiger, 76 Lincoln Ave., Little Falls, N. J.
51. Johnson & Davis Plbg. & Htg. Co., 2239 Arapahoe St., Denver, Colo.
52. Adams & Noe, Rutland, Vt.
53. Brown Bros., Inc., 3210 West North Avenue, Milwaukee, Wis.
54. Slater Plbg. & Htg. Co., 110 W. Main, Chanute, Kans.
55. W. F. Sheahan, 113 E. 8th, Topeka, Kans.
56. S. A. Wilkinson, 24 S. Garden St., Norwalk, Ohio.
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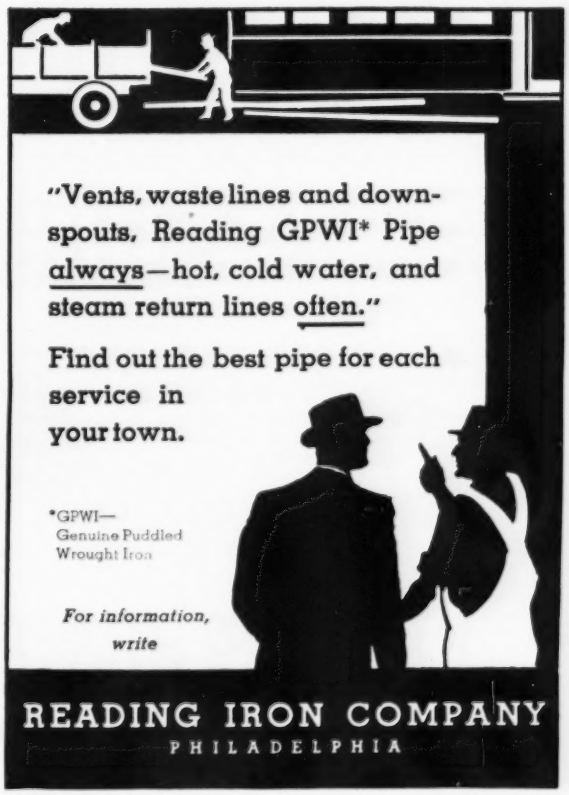
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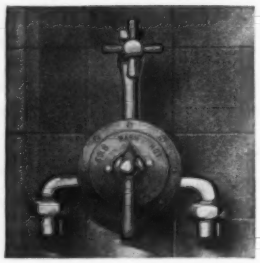

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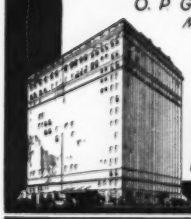

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61. M. F. Fischer & Son, Norman, Okla.
62. Wm. Ehlert, 956 The Alameda, San Jose, Calif.
63. H. C. Croft, 12 Churchville Ave., Staunton, Va.
64. Borman Bros. Plumbing Co., 321 Ouachita Ave., Hot Springs, Ark.
65. Iola Plumbing Co., Iola, Kans.
66. The Orr Plbg. Co., 513 Jackson St., Sioux City, Iowa.
67. John Bros. & Son, 1416 Routt, Pueblo, Colo.
68. Martin W. Dugan Co., 6-10 Market Sq., Newburyport, Mass.
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70. Sullivan Plbg. Co., 389 Second St., Fall River, Mass.
71. G. F. Younkman Plbg. & Htg. Co., 214 So. Front, St., Fremont, Ohio.
72. H. D. Hubbs, 1258 First Ave., San Diego, Calif.
73. Pinckney Plbg. Co., 410 E. River St., Aberdeen, Wash.
74. H. E. Gates, 541 E St., Brawley, Calif.
75. Silver State Plbg. & Htg. Co., 1021 Pearl, Boulder, Colo.
76. Anthony J. Comilla, 25 Davis St., Bradford, Pa.
77. C. L. O'Brien & Co., 213 State St., Peoria, Ill.
78. Nate Zweifel, 1314 Jefferson, La Grande, Oreg.
79. Thomas J. Nolan, 2106 Cornaga Ave., Far Rockaway, N. Y.
80. Tulsa Plbg. Co., 7044-419 E. Fifth St., Tulsa, Okla.
81. P. A. Carlson, Belle Plaine, Iowa.
82. Harris Plumbing, Mangum, Okla.
83. Fred Spaeth, 1107 Washington, La Grande, Oregon.
84. John Rehder, 462 11th St., Red Wing, Minn.
85. B. H. Roy, 23 Mill St., Malone, N. Y.
86. Hayes Plbg. Co., 618 Kansas Ave., Atchison, Kans.
87. Geo. Mitchell, 513 3rd St., Santa Rosa, Calif.
88. The Hazleton Plbg. & Htg. Co., Hazleton, Pa.
89. Sooby, Harwood & Glover, 119 W. 6th St., Larned, Kans.
90. Maier Bros., 43 Bloomfield Ave., Newark, N. J.

Cross Connections—

(Continued from Page 54)

dysentery outbreak began earlier in one hotel than in the other. Later, the two parts of the outbreak, as indicated by the incidence of cases in the two hotels, ran roughly parallel courses. This situation points to one factor present in one hotel alone, and later, another factor influencing both simultaneously. These are found in the water supplies of the hotels.

The upper part of the Hotel Z is supplied through the piping system and pumps in Hotel X across the street. Two cross-connections between water pipes and sewers formerly existed in Hotel X which probably caused contamination of the entire water supply of Hotel X and that in the upper part of Hotel Z. Ameba cysts gaining access to this water would be swallowed by patrons and guests of both hotels and account for the similarity in the courses of the epidemic in the two hotel groups.

A leaking sewer was discovered over an ice water tank in Hotel X, which probably contaminated the ice water at intervals. The ice-water system did not extend to the other hotel across the street. It seems likely that cysts reaching the ice water, through the leaks in the sewer, started the outbreak, infecting a considerable number of guests and employes in Hotel X.

These people, after becoming infected, discharged

large numbers of cysts into the sewage of Hotel X in all parts of the building. The entrance of this heavily infected sewage into the general water supply of both hotels then occurred through the cross-connections, and thereby spread the disease to the occupants of the other hotel.

Tests made by our laboratory indicate that other waterborne diseases, such as typhoid fever, did not occur through these cross connections and sewer leaks, because of the high amount of residual chlorine normally present in the water. This account of chlorine was effective in destroying organisms of typhoid fever, but had little or no effect upon the highly resistant cysts of Entameba histolytica.

The cross connections which endangered the water supply of both hotels were removed before the sewer leaks over the ice water tanks were found. New cases of the disease ceased to occur among the guests of Hotel Z when these cross connections were broken, but continued, upon a reduced scale, in Hotel X until the ice water system was taken out of service upon the discovery of the sewer leaks above the tank. Since then, the outbreak has not reappeared in either hotel.

NEW INSPECTORS ADDED

As the result of these investigations, special forces of sanitary engineers and plumbing inspectors, totaling 45 men, were added to the staff of the Board of Health and have been busily making studies of plumbing and water supplies in all other hotels in our city. Ultimately, I hope to extend their activities to all the larger buildings, espcially where the plumbing systems are complex and where corrosion is advanced.

The fourth recent outbreak of water-borne disease is one of typhoid fever and amebic dysentery which occurred among firemen and spectators at the great Stock Yards fire in May, 1934. Sixty-nine cases of typhoid fever with 11 deaths, and 11 cases of amebic dysentery with 1 death, occurred from drinking water used ordinarily only for cattle. This water was known by the employes of the Stock Yards to be unfit to drink, but people not aware of this fact used it with tragic results. The source of the contaminated water has been abandoned as the result of that experience.

In April of 1934, the Chicago Board of Health passed a regulation requiring water pipes to be painted distinctive colors in all factories having water supplies from two or more sources. Light blue is prescribed for the city public water supply pipes. It is hoped to prevent confusion and some accidental cross-connections by this means.

More attention is being given than formerly to assuring that plumbing installations are made by well-qualified master plumbers. Many of the illegal and dangerous cross-connections we have discovered have, doubtless, been installed by the "handy men" who know nothing of the health hazards to which they are exposing themselves and others. I am convinced that it is very important that only licensed master plumbers have charge of new plumbing installations or remodeling jobs. It is also important that health departments have well-qualified plumbing inspectors to pass upon the work.

Obsolete plumbing codes which lay too much stress upon things of no importance to health and give too

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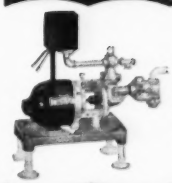
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little attention to vital public health matters must be brought up to date. Medical men should interest themselves in seeing that this is done in their own cities, and master plumbers should do all they can to enlist their cooperation.

Hamilton—

(Continued from Page 55)

ditioning must be built upon the basis of a good heating system, it will be logical for the heating trade to become the channel through which air conditioning apparatus reaches its market. Contractors will be called upon to sell air conditioning—to install it—and to service it.

Fortunately—or perhaps I should say advisedly—air conditioning for the residential and small commercial field will not be the complicated process it must necessarily be for a large industrial or business installation. On the contrary, the trend is definitely toward simplification of equipment for the small installation.

Heating engineers are bending every effort toward providing air conditioning apparatus which may be easily installed by the heating contractor. Every possible means will be taken by the manufacturers of heating and air conditioning equipment to assist the contractor by supplying the necessary technical information.

Those members of the heating trade who recognize the all-important need for equipping themselves with this knowledge will be the ones to benefit from this great development, and the ones who will sell air conditioning.

UNDERSTAND METHODS TO SELL

So it is with all phases of the industry today. For a heating man to make the most of the future of the heating industry, he must strive to improve his understanding of the constantly refined methods, as well as his facilities for selling them.

Whether or not the heating industry will ever reach again the point where its members can sit back and wait for business to come to them is a question. Although selling will undoubtedly become easier with the natural increase in building operations, the fact remains that the heating contractor from now on must "hustle" toward a thorough understanding of each new and better type of equipment as it appears.

This necessity I consider to be a virtue. For it will develop an increasingly professional heating trade. It will arouse among the trade the consciousness of the aggressive and progressive activity necessary to develop the vast potential heating markets of the country.

I also feel that an even closer cooperation between the trade and the manufacturer will result from these developments, and I believe that the evident need for such cooperation is a happy omen for the increased welfare of every branch of the heating industry.

The American Radiator Company and its affiliate organizations are keenly aware of these opportunities. They are concentrating more aggressively than ever before upon the development of better methods and equipment for heating and air conditioning, with these opportunities as their specific objective.

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HELP WANTED—SALESMEN—RUBber plumbing specialties. High grade line. Commission basis with weekly advance against earnings. Exclusive territory. Rare opportunity for good men. Give complete history of experience with application. Address Key 127-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WANTED: PLUMBING AND HEATing salesman for southern Illinois and western Kentucky. State qualifications. Must be a hustler. Address Key 128-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WANTED—A MAN WHO HAS SALES experience for the position of Chief Clerk and Office Manager by a large wholesaler handling plumbing, heating and roofing. Give full particulars as to age, experience, references and salary expected. Address Key 132-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Situations Wanted

GENERAL SUPERINTENDENT — Twenty-five years' practical experience manufacturing plumbing brass. Capable designer of new fixtures. Now available. Address Key 130-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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THERMOSTAT FOR USE ON ALL types of space gas heaters. High type experienced sales representation who can operate upon straight commission, exclusive protected territory should write giving details, references, lines handled, territory covered and experience. Nicostat Heat Control Co., 2016 West Washington, Los Angeles, California.

WANTED—SALES REPRESENTAtives for central, southern and western territories on complete line of air conditioning equipment. Line offers unusual opportunity for the right man with the proper engineering knowledge. Strictly commission basis. State age, experience and give complete references. Address Key 126-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

REPRESENTATIVES WANTED FOR established steel boiler manufacturer. Making complete line of steel boilers. Preference given to man having previous experience selling steel boilers, or who are handling a steam specialty line. Give complete particulars when answering. Address Key 109-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

REPRESENTATIVES WANTED — selling to jobbers on commission basis a full line of Plumbers Brass Goods, one covering up-state New York and one covering Missouri and bordering states preferably residing in St. Louis or Kansas City. Address Key 124-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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Index to Advertisers

February, 1935

Allen-Bradley Co. 16
American Brass Co.....17, 19
American Gas Products Corp. 25
American Radiator Company.....86 and 87
American Seat & Tank Co.126
American Society of Heating & Ventilating Engineers 112
American Veterans Association 32
Anderson Manufacturing Co. 104
Armstrong Bros. Tool Co..110
Ayling & Reichert Co.....155

Barber-Colman Company..104
Barnes & Jones, Inc.....107
Bead Chain Mfg. Co., The..141
Beaton & Cadwell Mfg. Co.109
Bell & Gossett Co.....103
Benson Co., Inc., Alex R...156
Bridgeport Brass Co..... 24
Burnham Boiler Corp..... 23

Cash Valve Mfg. Corp., A. W. 96
Century Electric Co.....101
Chase Brass & Copper Co... .....Inside Back Cover
Chicago Faucet Co..... 9
Crane Co..... 29
Cudahy Packing Co.....142

Dahlquist Mfg. Co.....150
Dail Steel Products Co.....108
Dart Mfg. Co., E. M.....108
Decatur Pump Company..155

Eagle-Picher Lead Co.....149
Eastern Foundry Co., The.. 91
Excelso Products Corp.....105

Fairbanks, Morse & Co....160
Fedders Mfg. Co.....107
Fitzgibbons Boiler Co., Inc. 62
Fretz-Moon Tube Co.....134

General Electric Co..... 27
General Fittings Co..... 94
Gerstein & Cooper Co..... 97
Goulds Pumps, Inc....6 and 7
Grand Haven Brass Foundry 145

Harvey-Whipple, Inc.....103
Hayes Mfg. Co.....144
Hays Mfg. Co..... 21
Hindley Mfg. Co.....156
Hoffman Specialty Co.....111
Hotel Melbourne 154
Hotel Pontchartrain 156
Hotstream Heater Co.....102

Imperial Brass Mfg. Co.... .....130 and Back Cover

Jarecki Mfg. Co.....129
Jones & Laughlin Steel Corp. 12

Kainer & Co.....106
Kennedy Valve Mfg. Co...145
Kewanee Boiler Corp..... 15
Kitson Co. 102
Koven & Bro., Inc., L. O..125

Leonard-Rooke Co., Inc....154
Linde Air Products Co., The 22

Maid-O-Mist, Inc.....109
McDonald Mfg. Co., A. Y...156
Mercoid Corp., The.....106
Milwaukee Valve Co..... 93
Minneapolis-Honeywell Regulator Co. 18
Modine Mfg. Co.....108
Morency-Van Buren Division, Scovill Mfg. Co.... 10
Mueller Brass Co..... 11
Mueller Co. 155
Myers & Bro. Co., F. E.... .....30 and 31

Nash Engineering Co..... 33
National Regulator Co.....105
Northern Indiana Brass Co. 8
Nu-Way Corp. 108
Nye Tool & Machine Works 151

Penberthy Injector Co.... .....35 and 53
Pennsylvania Range Boiler Co. 153
Practical Instrument Co...151

Reading Iron Company....153
Red Jacket Manufacturing Co. 28
Reichert Float & Mfg. Co.144
Republic Steel Corp..... .....Inside Front Cover
Revere Copper & Brass, Inc. 26
Ridge Tool Co., The..... 99
Roper Corp., Geo. D..... 152

San-Equip, Inc.....119
Sarco Co., Inc.....137
Scovill Mfg. Co..... 14
Scovill Mfg. Co., Morency-Van Buren Division..... 10
Silent Glow Oil Burner Corp., The 83
Sloan Valve Co..... 59
Smooth-On Mfg. Co.....149
Speakman Co. 13
Standard Sanitary Mfg. Co. 5
Streamline Pipe & Fittings Co., Division Mueller Brass Co. 11

Thrush & Co., H. A..... 20
Toledo Pipe Threading Machine Co., The..... 36
Trimont Mfg. Co.....133

Uniflow Manufacturing Co.144
Union Carbide and Carbon Corp. 22
Union Coil & Mfg. Co.....110

Vogel Co., Jos. A..... 3

Walworth Company.....159
Ward Mfg. Co.....144
Warnock Mfg. Co.....155
Waterfilm Boilers, Inc.... 92
Wayne Oil Burner Corp... 96
Worcester Brush & Scraper Co. 152

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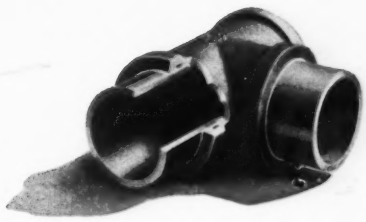

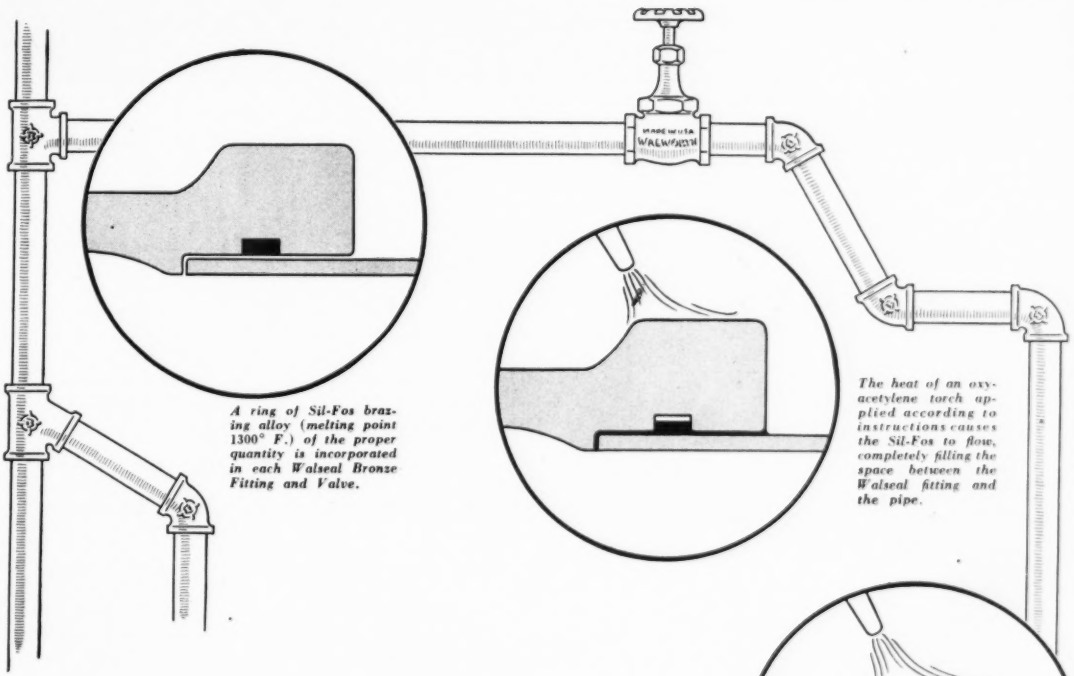

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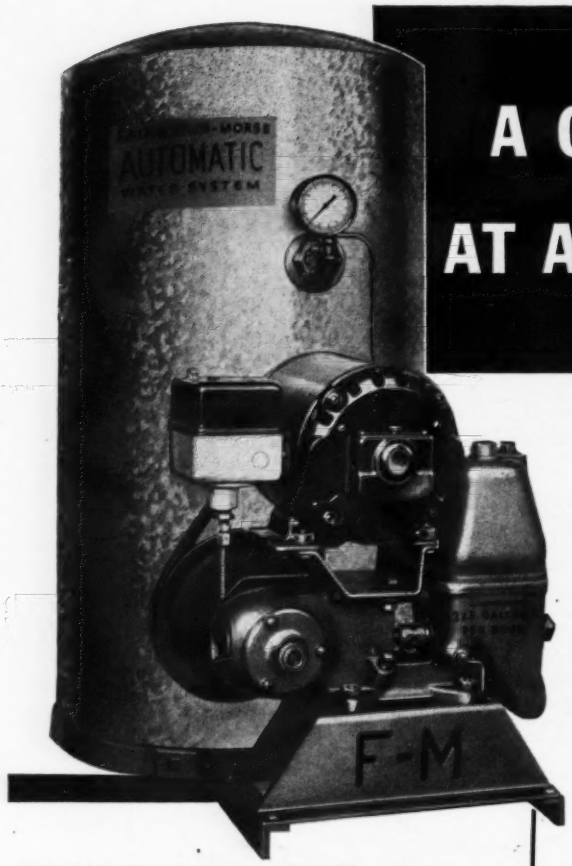

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